STIC Search Report
EIC 3700

STIC Database Tracking Number: 133306

TO: Kathryn Odland **Location: pk1 11e50** **Art Unit: 3743** **Thursday, September 30, 2004** **Case Serial Number: 09/539748**	**From: Emory Damron** **Location: EIC 3700** **CP2-2C08** **Phone: 305-8587** **Emory.Damron@uspto.gov**

Search Notes

Dear Kathryn,

Please find below an inventor search in the bibliographic and full-text foreign patent files, as well as keyword searches in the patent and non-patent literature files, both bibliographic and full text.
References of potential pertinence have been tagged, but please review all the packets in case you like something I didn't.
In addition to searching on Dialog, I also EPO/JPO/Derwent, Scirus and ScienceDirect.
I believe you'll find adequate art in most of the packets.
Please contact me if I can refocus or expand any aspect of this case, and please take a moment to provide any feedback (on the form provided) so EIC 3700 may better serve your needs.
Sincerely,

Emory Damron
Technical Information Specialist
EIC 3700, US Patent & Trademark Office
Phone: (703) 305-8587/ Fax: (703) 306-5915
Emory.damron@uspto.gov

Access DB# 133306

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: KATHRYN ODLAND Examiner #: 78998 Date: 9/22/04
Art Unit: 3743 Phone Number 306 3454 Serial Number: 09 539 748
Mail Box and Bldg/Room Location: CPK1 11 E 50 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

****

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: SYSTEM AND METHODS FOR SOFT TISSUE RECONSTRUC

Inventors (please provide full names): PETER ROSENBLATT ; DALE WHIPPLE

Earliest Priority Filing Date: 3/31/2000

**For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

See attachment

****

STAFF USE ONLY	Type of Search	Vendors and cost where applicable
Searcher: Emory Banks	NA Sequence (#)	STN
Searcher Phone #: 305 8587	AA Sequence (#)	Dialog 1651.16
Searcher Location: CP2 2C8	Structure (#)	Questel/Orbit
Date Searcher Picked Up: 9/28/04 430P	Bibliographic X	Dr.Link
Date Completed: 9/30/04 930A	Litigation	Lexis/Nexis
Searcher Prep & Review Time: 270 m	Fulltext X	Sequence Systems
Clerical Prep Time: 270 m	Patent Family	WWW/Internet X
Online Time: X	Other	Other (specify)

PTO-1590 (8-01)

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Set     Items   Description
S1         53   AU=(ROSENBLATT P? OR ROSENBLATT, P? OR WHIPPLE D? OR WHIPP-
              LE, D?)
S2          0   PETE?(2N)ROSENBLATT OR DALE(2N)WHIPPLE
S3      11688   VAGIN? OR PARAVAGIN?
S4     253464   IC=(A61B? OR A61D?)
S5          6   S1:S2 AND S3:S4
S6          6   IDPAT (sorted in duplicate/non-duplicate order)
? show files
File 347:JAPIO Nov 1976-2004/May(Updated 040903)
         (c) 2004 JPO & JAPIO
File 350:Derwent WPIX 1963-2004/UD,UM &UP=200462
         (c) 2004  Thomson Derwent
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6/3,K/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.

016068393 **Image available**
WPI Acc No: 2004-226250/200421
XRPX Acc No: N04-178858
Cutting machine for allograft implant, has hollow blade that passes through source material in straight line when piece of allograft bone is placed between mandrel and blade, producing cylindrical shape of bone from the allograft bone
Patent Assignee: FAHERTY R (FAHE-I); GATTURNA R F (GATT-I); SENNETT A R (SENN-I); WHIPPLE D E (WHIP-I)
Inventor: FAHERTY R; GATTURNA R F; SENNETT A R; **WHIPPLE D E**
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 20040049198	A1	20040311	US 2002241233	A	20020911	200421	B

Priority Applications (No Type Date): US 2002241233 A 20020911
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20040049198	A1		14	A61B-017/16	

...Inventor: **WHIPPLE D E**
International Patent Class (Main): **A61B-017/16**

6/3,K/2 (Item 2 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.

015864777 **Image available**
WPI Acc No: 2004-022608/200402
XRAM Acc No: C04-007049
XRPX Acc No: N04-017531
Sling for supporting urethra and bladder of patient comprises first and second end portions, support portion intermediate first and second end portions for supporting urethra, and first and second transition segments
Patent Assignee: COOK UROLOGICAL INC (COOK-N); ANDREWS M O (ANDR-I); BOSLEY R W (BOSL-I); CHIN L (CHIN-I); FISCHER F J (FISC-I); JONES J S (JONE-I); PATEL U H (PATE-I); ROSENBLATT P L (ROSE-I); RYAN W N (RYAN-I); COOK BIOTECH INC (COOK-N)
Inventor: ANDREWS M O; BOSLEY R W; CHIN L; FISCHER F J; JONES S J; PATEL U H; **ROSENBLATT P L** ; RYAN W N; JONES J S
Number of Countries: 103 Number of Patents: 003
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 200392546	A2	20031113	WO 2003US13584	A	20030430	200402	B
US 20040006353	A1	20040108	US 2002376575	P	20020430	200404	
			US 2003427394	A	20030430		
AU 2003231229	A1	20031117	AU 2003231229	A	20030430	200442	

Priority Applications (No Type Date): US 2002376575 P 20020430; US 2003427394 A 20030430
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200392546	A2	E	42	A61F-002/00	

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NI NO NZ OM PH PL PT RO RU SC SD SE SG SK SL TJ TM TN TR TT TZ UA UG UZ VC VN

YU ZA ZM ZW
Designated States (Regional): AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE LS LU MC MW MZ NL OA PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW
US 20040006353 A1 A61B-017/08 Provisional application US 2002376575

AU 2003231229 A1 A61F-002/00 Based on patent WO 200392546

...Inventor: **ROSENBLATT P L**
International Patent Class (Main): **A61B-017/08** ...

6/3,K/3 (Item 3 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.

015228205 **Image available**
WPI Acc No: 2003-289118/200328
XRPX Acc No: N03-229942
Anatomic structure integrity evaluation system in medical surgical applications, in which invasion of anatomic structure by one sensor alters communication between two sensors
Patent Assignee: ROSENBLATT P L (ROSE-I)
Inventor: **ROSENBL**ATT P L
Number of Countries: 100 Number of Patents: 003
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 20030018279	A1	20030123	US 2001306077	P	20010718	200328	B
			US 2002198592	A	20020718		
WO 200308924	A1	20030130	WO 2002US22764	A	20020718	200328	
AU 2002355112	A1	20030303	AU 2002355112	A	20020718	200452	

Priority Applications (No Type Date): US 2001306077 P 20010718; US 2002198592 A 20020718
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20030018279	A1		13	A61B-005/05	Provisional application US 2001306077

WO 200308924 A1 E G01M-003/16
Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ VN YU ZA ZM ZW
Designated States (Regional): AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SK SL SZ TR TZ UG ZM ZW
AU 2002355112 A1 G01M-003/16 Based on patent WO 200308924
Inventor: **ROSENBLATT P L**
International Patent Class (Main): **A61B-005/05** ...

6/3,K/4 (Item 4 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.

014572267 **Image available**
WPI Acc No: 2002-392971/200242
Related WPI Acc No: 2000-023460; 2004-097877
XRAM Acc No: C02-110487
XRPX Acc No: N02-308071

Spinal implant device for spinal surgery, has dovetail protrusion which mechanically anchors load sharing structure having different elastic modulus materials to adjacent vertebrae

Patent Assignee: NICHOLSON J E (NICH-I); TROMANHAUSER S G (TROM-I); WHIPPLE D E (WHIP-I); CORTEK INC (CORT-N)
Inventor: NICHOLSON J E; TROMANHAUSER S G; **WHIPPLE D E**
Number of Countries: 001 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 20020032483	A1	20020314	US 9872777	A	19980506	200242	B
			US 2001871908	A	20010604		
US 6679887	B2	20040120	US 9872777	A	19980506	200407	
			US 2001871908	A	20010604		

Priority Applications (No Type Date): US 2001871908 A 20010604; US 9872777 A 19980506
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20020032483	A1		20	A61F-002/44	CIP of application US 9872777 CIP of patent US 6241769
US 6679887	B2			A61B-017/00	CIP of application US 9872777 CIP of patent US 6241769

...Inventor: **WHIPPLE D E**
International Patent Class (Main): **A61B-017/00** ...
International Patent Class (Additional): **A61B-017/32** ...

... **A61B-017/92**

related? to "US" application

6/3,K/5 (Item 5 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.

013565391 **Image available**
WPI Acc No: 2001-049598/200106
XRPX Acc No: N01-038061
System for soft tissue reconstructive surgery, has applicator which inserts soft tissue fixation device which fixes at least two intact anatomic soft tissue structures
Patent Assignee: ROSENBLATT P L (ROSE-I)
Inventor: **ROSENBLATT P L**
Number of Countries: 090 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 200057796	A1	20001005	WO 2000US8704	A	20000331	200106	B
AU 200041878	A	20001016	AU 200041878	A	20000331	200106	

Priority Applications (No Type Date): US 99163305 P 19991103; US 99127104 P 19990331; US 99154763 P 19990920
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200057796	A1	E	73	A61B-017/064	

Designated States (National): AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ TZ UG ZW

AU 200041878	A			A61B-017/064	Based on patent WO 200057796

Inventor: **ROSENBLATT P L**

Abstract (Basic):
... d) method of surgical **paravaginal** repair...
International Patent Class (Main): **A61B-017/064**

6/3,K/6 (Item 6 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.

012851628 **Image available**
WPI Acc No: 2000-023460/200002
Related WPI Acc No: 2002-392971; 2004-097877
XRAM Acc No: C00-005775
XRPX Acc No: N00-017434
Spinal implant used to take the structural place of removed discs and vertebrae during healing
Patent Assignee: CORTEK INC (CORT-N); NICHOLSON J E (NICH-I); TROMANHAUSER S G (TROM-I); WHIPPLE D E (WHIP-I)
Inventor: NICHOLSON J E; TROMANHAUSER S G; WHIPPE D E; **WHIPPLE D E**
Number of Countries: 083 Number of Patents: 014
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 9956676	A1	19991111	WO 99US9841	A	19990506	200002 B
AU 9937879	A	19991123	AU 9937879	A	19990506	200016
US 6096080	A	20000801	US 9872777	A	19980506	200039
			US 99248151	A	19990210	
BR 9910250	A	20010109	BR 9910250	A	19990506	200106
			WO 99US9841	A	19990506	
EP 1076536	A1	20010221	EP 99920362	A	19990506	200111
			WO 99US9841	A	19990506	
US 6241733	B1	20010605	US 99248151	A	19990210	200133
			US 99408762	A	19990930	
US 6241769	B1	20010605	US 9872777	A	19980506	200133
US 6258094	B1	20010710	US 9872777	A	19980506	200141
			US 99248151	A	19990210	
			US 99411500	A	19991004	
US 6261293	B1	20010717	US 9872777	A	19980506	200142
			US 99248151	A	19990210	
			US 99408760	A	19990930	
US 6261295	B1	20010717	US 9872777	A	19980506	200142
			US 99248151	A	19990210	
			US 99411501	A	19991004	
US 20010031967	A1	20011018	US 9872777	A	19980506	200166
			US 99248151	A	19990210	
			US 99408762	A	19990930	
			US 2001871298	A	20010531	
KR 2001043022	A	20010525	KR 2000711880	A	20001025	200168
JP 2002526127	W	20020820	WO 99US9841	A	19990506	200258
			JP 2000546709	A	19990506	
MX 2000010777	A1	20020301	WO 99US9841	A	19990506	200362
			MX 200010777	A	20001101	

Priority Applications (No Type Date): US 99248151 A 19990210; US 9872777 A 19980506; US 99408762 A 19990930; US 99411500 A 19991004; US 99408760 A 19990930; US 99411501 A 19991004; US 2001871298 A 20010531
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 9956676	A1	E	55	A61F-002/44	

Designated States (National): AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE GH GM HR HU ID IL IS JP KE KG KP KR KZ LC LK LR

LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZW
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ UG ZW

AU	9937879	A		Based on patent WO 9956676
US	6096080	A		CIP of application US 9872777
BR	9910250	A	A61F-002/44	Based on patent WO 9956676
EP	1076536	A1 E	A61F-002/44	Based on patent WO 9956676
	Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE			
US	6241733	B1	A61B-017/16	Div ex application US 99248151 Div ex patent US 6096080
US	6241769	B1	A61F-002/44	
US	6258094	B1	A61B-017/16	CIP of application US 9872777 Div ex application US 99248151 Div ex patent US 6096080
US	6261293	B1	A61B-017/14	CIP of application US 9872777 Div ex application US 99248151 Div ex patent US 6096080
US	6261295	B1	A61F-005/00	CIP of application US 9872777 Div ex application US 99248151 Div ex patent US 6096080
US	20010031967	A1	A61B-017/00	CIP of application US 9872777 Div ex application US 99248151 Cont of application US 99408762 Div ex patent US 6096080 Cont of patent US 6241733 CIP of patent US 6241769
KR	2001043022	A	A61F-002/44	
JP	2002526127	W 50	A61F-002/44	Based on patent WO 9956676
MX	2000010777	A1	A61F-002/44	Based on patent WO 9956676

...Inventor: **WHIPPLE D E**
International Patent Class (Main): **A61B-017/00** ...

... **A61B-017/14** ...
... **A61B-017/16**

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Set     Items   Description
S1         36   AU=(ROSENBLATT P? OR ROSENBLATT, P? OR WHIPPLE D? OR WHIPP-
              LE, D?)
S2         12   PETE?(2N)ROSENBLATT OR DALE(2N)WHIPPLE
S3      21367   VAGIN? OR PARAVAGIN?
S4      56386   IC=(A61B? OR A61D?)
S5          5   S1:S2 AND S3:S4
S6          5   IDPAT (sorted in duplicate/non-duplicate order)
? show files
File 348:EUROPEAN PATENTS 1978-2004/Sep W03
         (c) 2004 European Patent Office
File 349:PCT FULLTEXT 1979-2002/UB=20040923,UT=20040916
         (c) 2004 WIPO/Univentio
?
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6/3,AU/1 (Item 1 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS
(c) 2004 European Patent Office. All rts. reserv.

01559405
DETECTING OR PREVENTING TISSUE DAMAGE
DETEKTION ODER VERHINDERUNG VON GEWEBEBESCHADIGUNG
DETECTION OU PREVENTION DE BLESSURE TISSULAIRE
PATENT ASSIGNEE:
Rosenblatt , Peter L., (2869300), 25 Bruce Lane, Newton, MA 02458, (US), (Applicant designated States: all
INVENTOR:
Rosenblatt , Peter L., 25 Bruce Lane, Newton, MA 02458, (US
PATENT (CC, No, Kind, Date): WO 2003008924 030130
APPLICATION (CC, No, Date): EP 2002752418 020718; WO 2002US22764 020718
PRIORITY (CC, No, Date): US 306077 P 010718
DESIGNATED STATES: AT; BE; BG; CH; CY; CZ; DE; DK; EE; ES; FI; FR; GB; GR; IE; IT; LI; LU; MC; NL; PT; SE; SK; TR
EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI
INTERNATIONAL PATENT CLASS: G01M-003/16; **A61B-005/05**
LANGUAGE (Publication,Procedural,Application): English; English; English

6/3,AU/2 (Item 2 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
(c) 2004 WIPO/Univentio. All rts. reserv.

00979002
DETECTING OR PREVENTING TISSUE DAMAGE
DETECTION OU PREVENTION DE BLESSURE TISSULAIRE
Patent Applicant/Inventor:
ROSENBLATT Peter L, 25 Bruce Lane, Newton, MA 02458, US, US (Residence), US (Nationality
Legal Representative:
KAMHOLZ Scott E (et al) (agent), Patent Group, Foley Hoag LLP, 155 Seaport Avenue, Boston, MA 02210-2698, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200308924 A1 20030130 (WO 0308924)
Application: WO 2002US22764 20020718 (PCT/WO US0222764)
Priority Application: US 2001306077 20010718
Designated States:
(Protection type is "patent" unless otherwise stated - for applications prior to 2004)
AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ
EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR
LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI
SK SL TJ TM TN TR TT TZ UA UG US UZ VN YU ZA ZM ZW
(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LU MC NL PT SE SK TR
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 5471

6/3,AU/3 (Item 3 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS
(c) 2004 European Patent Office. All rts. reserv.

01217224
SYSTEMS AND METHODS FOR SOFT TISSUE RECONSTRUCTION
SYSTEME SOWIE VERFAHREN ZUM WIEDERAUFBAU VON WEICHGEWEBEN
SYSTEMES ET PROCEDES DE RECONSTRUCTION DES TISSUS MOUS
PATENT ASSIGNEE:
Rosenblatt , Peter L., (2869300), 25 Bruce Lane, Newton, MA 02458, (US), (Applicant designated States: all
INVENTOR:
Rosenblatt , Peter L., 25 Bruce Lane, Newton, MA 02458, (US
PATENT (CC, No, Kind, Date):
WO 2000057796 001005
APPLICATION (CC, No, Date): EP 2000921580 000331; WO 2000US8704 000331
PRIORITY (CC, No, Date): US 127104 P 990331; US 154763 P 990920; US 163305 P 991103
DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI; LU; MC; NL; PT; SE
INTERNATIONAL PATENT CLASS: **A61B-017/064**
LANGUAGE (Publication,Procedural,Application): English; English; English

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6/3,AU/4 (Item 4 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
(c) 2004 WIPO/Univentio. All rts. reserv.

related?

00744769
SYSTEMS AND METHODS FOR SOFT TISSUE RECONSTRUCTION
SYSTEMES ET PROCEDES DE RECONSTRUCTION DES TISSUS MOUS
Patent Applicant/Inventor:
ROSENBLATT Peter L, 25 Bruce Lane, Newton, MA 02458, US, US (Residence), US (Nationality)
WHIPPLE Dale E, 91 Tania Drive, E. Taunton, MA 02718, US, US (Residence), US (Nationality
Legal Representative:
VINCENT Matthew P (et al) (agent), Foley, Hoag & Eliot, LLP, One Post Office Square, Boston, MA 02109, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200057796 A1 20001005 (WO 0057796)
Application: WO 2000US8704 20000331 (PCT/WO US0008704)
Priority Application: US 99127104 19990331; US 99154763 19990920; US 99163305 19991103
Designated States:
(Protection type is "patent" unless otherwise stated - for applications prior to 2004)
AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
(AP) GH GM KE LS MW SD SL SZ TZ UG ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 16345

6/3,AU/5 (Item 5 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
(c) 2004 WIPO/Univentio. All rts. reserv.

01064916

SLING FOR SUPPORTING TISSUE

BANDELETTE DE SOUTIEN DE TISSUS

Patent Applicant/Assignee:
COOK UROLOGICAL INC, 750 Daniels Way, Bloomington, IN 47404, US, US (Residence), US (Nationality)
COOK BIOTECH INCORPORATED, 3055 Kent Avenue, West Lafayette, IN 47906, US , US (Residence), US (Nationality)

Inventor(s):
BOSLEY Rodney W Jr, 4663 W. Harvest Lane, Bloomington, IN 47404, US,
PATEL Umesh H, 1135 Kingswood Road S., West Lafayette, IN 47906, US,
ANDREWS Marvin O, 3818 Laura Way, Bloomington, IN 47401, US,
CHIN Likang, 2243 U.S. Highway 52, W#1231, West Lafayette, IN 47906, US,
FISCHER Frank J Jr, 4901 South Old State Road 37, Bloomington, IN 47401, US,
RYAN Walter N, 9630 S. Lake Ridge Road, Bloomington, IN 47401, US,
ROSENBLATT Peter L , 725 Concord Avenue, Suite 3300, Cambridge, MA 02138 , US,
JONES Stephen J, 18400 Shake Boulevard, Shaker Heights, OH 44120, US

Legal Representative:
OKEY David W (agent), BRINKS HOFER GILSON & LIONE, P.O. Box 10087, Chicago, IL 60610, US,

Patent and Priority Information (Country, Number, Date):
Patent: WO 200392546 A2-A3 20031113 (WO 0392546)
Application: WO 2003US13584 20030430 (PCT/WO US03013584)
Priority Application: US 2002376575 20020430

Designated States:
(Protection type is "patent" unless otherwise stated - for applications prior to 2004)
AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ
EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR
LS LT LU LV MA MD MG MK MN MW MX MZ NI NO NZ OM PH PL PT RO RU SC SD SE
SG SK SL TJ TM TN TR TT TZ UA UG UZ VC VN YU ZA ZM ZW
(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL PT RO SE
SI SK TR
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
(EA) AM AZ BY KG KZ MD RU TJ TM

Publication Language: English
Filing Language: English
Fulltext Word Count: 10107

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Set     Items   Description
S1        639   AU=(ROSENBLATT P? OR ROSENBLATT, P? OR WHIPPLE D? OR WHIPP-
            LE, D?)
S2          1   PETE?(2N)ROSENBLATT OR DALE(2N)WHIPPLE
S3     251837   VAGIN? OR PARAVAGIN?
S4         31   S1:S2 AND S3
S5         15   S4 AND PY<2001
S6          3   RD (unique items)
? show files
File   2:INSPEC 1969-2004/Sep W3
         (c) 2004 Institution of Electrical Engineers
File   5:Biosis Previews(R) 1969-2004/Sep W3
         (c) 2004 BIOSIS
File   6:NTIS 1964-2004/Sep W3
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         (c) 2004 Elsevier Eng.  Info. Inc.
File  34:SciSearch(R) Cited Ref Sci 1990-2004/Sep W3
         (c) 2004 Inst for Sci Info
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         (c) 2004 ProQuest Info&Learning
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       . (c) 2004 BLDSC all rts. reserv.
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         (c) 2004  Elsevier Science B.V.
File  73:EMBASE 1974-2004/Sep W3
         (c) 2004 Elsevier Science B.V.
File  94:JICST-EPlus 1985-2004/Aug W5
         (c)2004 Japan Science and Tech Corp(JST)
File  95:TEME-Technology & Management 1989-2004/Jun W1
         (c) 2004 FIZ TECHNIK
File  99:Wilson Appl. Sci & Tech Abs 1983-2004/Aug
         (c) 2004 The HW Wilson Co.
File 144:Pascal 1973-2004/Sep W3
         (c) 2004 INIST/CNRS
File 155:MEDLINE(R) 1951-2004/Sep W4
         (c) format only 2004 The Dialog Corp.
File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec
         (c) 1998 Inst for Sci Info
File 481:DELPHES Eur Bus 95-2004/Sep W2
         (c) 2004 ACFCI & Chambre CommInd Paris
File 583:Gale Group Globalbase(TM) 1986-2002/Dec 13
         (c) 2002 The Gale Group
?
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6/3,K/1 **(Item 1 from file: 5)**
DIALOG(R)File 5:Biosis Previews(R)
(c) 2004 BIOSIS. All rts. reserv.

0011471058 BIOSIS NO.: 199800265305
The effect of posterior wall support defects on urodynamic indices in stress urinary incontinence
AUTHOR: Myers Deborah L (Reprint); Lasala Christine A; Hogan Joseph W; **Rosenblatt Peter L**
AUTHOR ADDRESS: 100 Dudley Street, Providence, RI 02905, USA**USA
JOURNAL: Obstetrics and Gynecology 91 (5 PART 1): p710-714 May, 1998 **1998**
MEDIUM: print
ISSN: 0029-7844
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

...AUTHOR: **Rosenblatt Peter L**
1998

ABSTRACT: Objective: To determine if posterior **vaginal** wall defects affect urodynamic indices and mask stress urinary incontinence. Methods: Ninety women with grade...
DESCRIPTORS:
...DISEASES: **vaginal** wall defects

6/3,K/2 **(Item 2 from file: 5)**
DIALOG(R)File 5:Biosis Previews(R)
(c) 2004 BIOSIS. All rts. reserv.

0010174640 BIOSIS NO.: 199698642473
The Mersilene mesh suburethral sling: A clinical and urodynamic evaluation
AUTHOR: Young Stephen B (Reprint); **Rosenblatt Peter L** ; Pingeton Diane M; Howard Allison E; Baker Stephen P
AUTHOR ADDRESS: Dep. Obstetrics Gynecol., Univ. Massachusetts Med. Cent., 55 Lake Ave. N., Worcester, MA 01655, USA**USA
JOURNAL: American Journal of Obstetrics and Gynecology 173 (6): p1719-1726 1995 **1995**
ISSN: 0002-9378
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

...AUTHOR: **Rosenblatt Peter L**
1995

...ABSTRACT: normal voiding was 10. Three women have long-term difficulty with retention. Erosion of the **vaginal** sling site occurred in two women, one of whom required removal (0.9%). CONCLUSIONS: The...

6/3,K/3 **(Item 3 from file: 5)**
DIALOG(R)File 5:Biosis Previews(R)
(c) 2004 BIOSIS. All rts. reserv.

0009588973 BIOSIS NO.: 199598056806
Use of interceed absorbable adhesion barrier for vaginoplasty
AUTHOR: Jackson N D (Reprint); **Rosenblatt P L**
AUTHOR ADDRESS: Cent. Women's Surgery, 100 Dudley St., Providence, RI

02905, U SA,
JOURNAL: Obstetrics and Gynecology 84 (6): p1048-1050 1994 **1994**
ISSN: 0029-7844
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

Use of interceed absorbable adhesion barrier for vaginoplasty
...AUTHOR: **Rosenblatt P L**
1994

ABSTRACT: **Vaginal** agenesis is a rare condition that can be treated successfully with a variety of nonoperative...

...amnion have all been reported for this purpose. In the present study, four women with **vaginal** agenesis underwent surgical construction of an artificial **vagina** using Interceed Absorbable Adhesion Barrier to cover an inflatable stent placed within the neovagina. There...

...The use of Interceed may reduce the cost, operative time, and morbidity associated with other **vaginoplasty** techniques.
DESCRIPTORS:
MISCELLANEOUS TERMS: ... **VAGINAL** AGENESIS

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Set     Items   Description
S1         66   AU=(ROSENBLATT P? OR ROSENBLATT, P? OR WHIPPLE D? OR WHIPP-
              LE, D?)
S2         18   PETE?(2N)ROSENBLATT OR DALE(2N)WHIPPLE
S3      33419   VAGIN? OR PARAVAGIN?
S4          2   S1:S2 AND S3
S5          2   RD (unique items)
? show files
File   9:Business & Industry(R) Jul/1994-2004/Sep 28
         (c) 2004  The Gale Group
File  15:ABI/Inform(R) 1971-2004/Sep 28
         (c) 2004 ProQuest Info&Learning
File  16:Gale Group PROMT(R) 1990-2004/Sep 29
         (c) 2004 The Gale Group
File  43:Health News Daily - Subs 1990-2004/Sep 28
         (c) 2004 F-D-C reports Inc.
File  47:Gale Group Magazine DB(TM) 1959-2004/Sep 29
         (c) 2004 The Gale group
File  98:General Sci Abs/Full-Text 1984-2004/Aug
         (c) 2004 The HW Wilson Co.
File 129:PHIND(Archival) 1980-2004/Sep W3
         (c) 2004 PJB Publications, Ltd.
File 130:PHIND(Daily & Current) 2004/Sep 28
         (c) 2004 PJB Publications,Ltd.
File 135:NewsRx Weekly Reports 1995-2004/Sep W3
         (c) 2004 NewsRx
File 148:Gale Group Trade & Industry DB 1976-2004/Sep 29
         (c)2004 The Gale Group
File 149:TGG Health&Wellness DB(SM) 1976-2004/Sep W1
         (c) 2004 The Gale Group
File 160:Gale Group PROMT(R) 1972-1989
         (c) 1999 The Gale Group
File 369:New Scientist 1994-2004/Sep W3
         (c) 2004 Reed Business Information Ltd.
File 370:Science 1996-1999/Jul W3
         (c) 1999 AAAS
File 441:ESPICOM Pharm&Med DEVICE NEWS 2004/Sep W4
         (c) 2004 ESPICOM Bus.Intell.
File 444:New England Journal of Med. 1985-2004/Sep W3
         (c) 2004 Mass. Med. Soc.
File 621:Gale Group New Prod.Annou.(R) 1985-2004/Sep 29
         (c) 2004 The Gale Group
?
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5/3,K/1 (Item 1 from file: 148)
DIALOG(R)File 148:Gale Group Trade & Industry DB
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09832939 SUPPLIER NUMBER: 18254383 (USE FORMAT 7 OR 9 FOR FULL TEXT)
1995 healthcare agency profiles. (Directory)
Medical Marketing & Media, v30, n7, p38(53)
July, 1995
DOCUMENT TYPE: Directory ISSN: 0025-7354 LANGUAGE: English
RECORD TYPE: Fulltext
WORD COUNT: 27113 LINE COUNT: 03051

... 20th Street New York, NY 10011 Phone: 212-243-5252 FAX-212-243-6102
Officers: **Peter** E. **Rosenblatt** , president; Marikp J. Rich, vice president. Yearfounded: 1970
Best Ad: ACE MDI Spacer Client: Center Laboratories
Creative/account team: **Peter** E. **Rosenblatt** , creafive director; Joseph Honig, senior art director.
Creative/account team: **Peter** E. **Rosenblatt** , creative director; Joseph Honig, senior art director.
Why this is our best work: We wanted...E.N., Impact; Sanofi-Winthrop Pharmaceuticals: Plaquenil, Carpuject; Syntex Labs: Ticlid; The Upjohn Co.: Cleocin **vaginal** cream, Cleocin T, Caverject.
Accounts gained: The Upjohn Co.: Vantin, Prepidil; Burroughs-Wellcome: Valtrex; McNeil...

5/3,K/2 (Item 1 from file: 149)
DIALOG(R)File 149:TGG Health&Wellness DB(SM)
(c) 2004 The Gale Group. All rts. reserv.

01557808 SUPPLIER NUMBER: 17855409
The Mersilene mesh suburethral sling: a clinical and urodynamic evaluation. (Transactions of the Twenty-first Annual Meeting of the Society of Gynecologic Surgeons)
Young, Stephen B.; **Rosenblatt, Peter L.** ; Pingeton, Diane M.; Howard, Allison E.; Baker, Stephen P
American Journal of Obstetrics and Gynecology, v173, n6, p1719(8)
Dec,
1995
PUBLICATION FORMAT: Magazine/Journal ISSN: 0002-9378 LANGUAGE: English
RECORD TYPE: Abstract TARGET AUDIENCE: Professional

... **Rosenblatt, Peter L**

...ABSTRACT: normally within six weeks of surgery. The appropriate sling tension was obtained by packing the **vagina** with gauze to elevate the urethra to its correct position, then stitching the mesh sling in place. Only two patients experienced erosion of the sling into the **vagina** , and the sling had to be removed in one case. The Mersilene mesh sling had...

L Number	Hits	Search Text	DB	Time stamp
2	87	whipple-d$.in.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/09/29 08:40
3	115	rosenblatt-p$.in. whipple-d$.in.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/09/29 08:41
4	4	(rosenblatt-p$.in. whipple-d$.in.) and (vagin$ or paravagin$)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/09/29 08:41
1	28	rosenblatt-p$.in.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/09/29 08:45

	Document ID	Title
1	US 20040186515 A1	Systems and methods for soft tissue reconstruction
2	US 20040006353 A1	Sling for supporting tissue
3	US 20030018279 A1	Detecting or preventing tissue damage
4	WO 200057796 A	System for soft tissue reconstructive surgery, has applicator which inserts soft tissue fixation device which fixes at least two intact anatomic soft tissue structures

"WO" VERSION, RELATED TO THIS APPLICATION

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Set      Items   Description
S1       33420   VAGIN? OR PARAVAGIN?
S2     2093468   (METHOD? OR SYSTEM? OR TECHNIQ? OR PROCESS? OR PROCEDUR?)(-
             5N)(SURG? OR CHIRURG? OR MEDIC? OR OPERAT? OR REPAIR? OR REPA-
             RAT? OR TREAT? OR REBUIL? OR FIX OR FIXE? OR FIXING OR OVERHA-
             UL? OR RECONSTRUCT?)
S3      186090   (METHOD? OR SYSTEM? OR TECHNIQ? OR PROCESS? OR PROCEDUR?)(-
             5N)(SUSPEN? OR MEND? OR RECTIF? OR REMED? OR CORRECT? OR CURE?
              OR CURING OR RESTOR?)
S4       13774   (METHOD? OR SYSTEM? OR TECHNIQ? OR PROCESS? OR PROCEDUR?)(-
             5N)(RECONSTIT? OR REHABIL? OR VAGINOPLAST? OR PARAVAGINOPLAST-
             ?)
S5         220   (INFERIO? OR SUPERIO?)()LATERAL? OR LATERAL?()SULC? OR VAG-
             IN?()SULC? OR PARAVAGIN?()SULC? OR LATERAL?()(VAGIN? OR PELVI-
             ?)
S6        4119   (PELVI? OR UTER? OR VAGIN? OR PARAVAGIN? OR ENDOPELV?)(3N)-
             (FLOOR? OR SIDEWALL? OR SIDE()WALL? OR WALL? OR VAULT? OR EPI-
             THEL?) OR LEVATOR()(ANI OR ANIS)
S7         332   (VAGIN? OR PARAVAGIN? OR SACROSPIN? OR PELVI? OR UTEROSACR?
              OR SACRA? OR UTER? OR ENDOPELV?)(5N)(LIGAMENT? OR TENDON? OR
             TENDIN? OR SINEW?)
S8         266   CYSTOCEL? OR RECTOCEL? OR VESICOCEL? OR CYSTOURETHROCEL? OR
              URETHROCEL?
S9       17397   (EPITHEL? OR EPIDERM? OR SKIN? OR TISSUE? OR MUSCL? OR FAS-
             CIA? OR VAGIN? OR PARAVAGIN? OR BLADDER? OR UTER? OR SHEATH? -
             OR WOMB?)(5N)(LAX OR LAXITY OR TORN? OR TEAR? OR STRETCH? OR -
             RIPPED OR LACERAT? OR HERNIA? OR DISTEN? OR FISSUR? OR...
S10      41173   (EPITHEL? OR EPIDERM? OR SKIN? OR TISSUE? OR MUSCL? OR FAS-
             CIA? OR VAGIN? OR PARAVAGIN? OR BLADDER? OR UTER? OR SHEATH? -
             OR WOMB?)(5N)(SEVER? OR OVEREXTEN? OR PROLAPS? OR COLLAPS? OR
             DEFECT? OR BULG? OR PROTRUS? OR PROTRUD? OR MALPOSITI...
S11  10125487   PLACE? OR PLACING OR LOCAT? OR SITUAT? OR EMPLAC? OR IMPLA-
             C? OR EMPLANT? OR IMPLANT? OR ENGRAFT? OR GRAFT? OR POSITION?
             OR AFFIX?
S12   6751166   CONNECT? OR ATTACH? OR FASTEN? OR SECURE? OR SECURING? OR -
             INSERT? OR LOCK? OR APPROXIMAT? OR IMMOBIL?
S13   1104055   FIXAT?(3N)(DEVIC? OR APPARAT? OR TOOL? OR IMPLEMENT? OR IN-
             STRUMENT? OR EQUIPM? OR UTENSIL? OR APPLIANC?) OR ANCHOR? OR -
             SCREW? OR SUTUR? OR CLEAT? OR CLIP? OR CLAMP? OR BARB?
S14   1023835   STAPL? OR TACK? OR BRAD? OR RIVET? OR FASTENER? OR TOGGLE?
             OR CONNECTOR? OR CONNECTER?
S15   2203867   TEMPLAT? OR STENCIL? OR EXEMPLAR? OR PROTOTYP? OR GUIDE? OR
              ALIGN?
S16      6089   S1 AND S2:S4
S17       577   S16 AND S1(10N)S2:S4
S18       166   S17 AND S5:S7
S19       115   S18 AND S8:S10
S20        99   S19 AND S11:S14
S21        34   S19 AND S15
S22        67   S17 AND S5:S10 AND S11:S14 AND S15
S23       185   S18:S22
S24       108   S23 AND PY<2001
S25        87   RD (unique items)
? show files
File   9:Business & Industry(R) Jul/1994-2004/Sep 29
         (c) 2004  The Gale Group
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         (c) 2004 ProQuest Info&Learning
File  16:Gale Group PROMT(R) 1990-2004/Sep 30
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File 43:Health News Daily - Subs 1990-2004/Sep 29
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25/3,K/6 (Item 3 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)
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07360813 Supplier Number: 59213740 (USE FORMAT 7 FOR FULLTEXT)
Abdominal vs. vaginal **; Which is better for incontinence surgery.(Brief Article)**
Dosa, Laszlo
Urology Times, v26, n4, p19
April, 1998
Language: English Record Type: Fulltext
Article Type: Brief Article
Document Type: Magazine/Journal; Trade
Word Count: 573

(USE FORMAT 7 FOR FULLTEXT)
Abdominal vs. vaginal **; Which is better for incontinence surgery.(Brief Article)**
TEXT:
FORT LAUDERDALE, FL--When it comes to surgical correction of urinary incontinence and **vaginal prolapse** , a random survey of urologists is likely to reveal two schools of thought. Some surgeons swear by the abdominal approach, while others are equally adamant in their support of **vaginal** procedures.
... and past experience.
"There is a split in the community between those surgeons who do **vaginal** approaches and those who do suprapubic approaches," said George D. Webster, MB, professor of urology...

...Webster shared the podium with Cindy Amundsen-Cross, MD.
Among the perceived advantages of the **vaginal** approach are lower morbidity and the ability to address prolapse problems that often coexist with...

...approach, while having a long and successful history, does not allow such ready management of **vaginal prolapse** .
"It's a tradeoff," Dr. Webster told Urology Times. "There are good results reported from...

...engage patients in slightly higher morbidity, slightly prolonged hospitalizations, and don't always address associated **vaginal** difficulties."
Still, Dr. Webster pointed out that the Burch colposuspension produces outcomes that are comparable with (if not superior to) most **vaginal** surgeries. The **vaginal** approach may be economically desirable, he said, but results are not as good, particularly with those **procedures** that rely on needle **suspension** , such as the Gittes and Stamey operations.
Attempts at performing the Burch colposuspension laparoscopically are ...

...the department of obstetrics, gynecology, and reproductive services at the University of Texas, Houston, believes **vaginal procedures** have the advantage of **surgical** economy.
"When performing an incontinence **procedure** such as a sling transvaginally, the benefit is that you may continue correcting all the **vaginal defects** from below," she said.
When it comes to repair of the **vaginal vault** , the choice between the **vaginal** and abdominal approaches is subject to surgeon preference, said Dr. Amundsen-Cross, though she noted the **vaginal** procedure tends to be associated with less morbidity.

Dr. Amundsen-Cross reports about 90% success rates for both the abdominal and **vaginal** approaches to repair the vault. "However, a lot of surgeons feel that they may not be able to perform **vault** suspension using a **vaginal** approach, either because the patient's **vagina** is too short or because they failed a prior **vaginal** approach," she said.

Paravaginal defects are repaired abdominally in many cases, but Dr. Cross repeated that the transvaginal approach is just as effective. **Rectocele** repairs are most successfully performed **vaginally** .

Though he prefers to perform pubovaginal slings, Dr. Webster does not recommend that all surgeons...

...there is no reason for patients to seek out an alternate caregiver who does something **vaginally** ," he said. " (Patients) have to ask the surgeon what his results are."

19980401

25/3,K/12 (Item 9 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)
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03447050 Supplier Number: 44805768 (USE FORMAT 7 FOR FULLTEXT)
New Surgery May Handle Two Types of Stress Incontinence
Urology Times, p6
July, 1994
Language: English Record Type: Fulltext
Document Type: Magazine/Journal; Trade
Word Count: 1038

(USE FORMAT 7 FOR FULLTEXT)
TEXT:
SAN FRANCISCO - Initial experience with the **vaginal wall** sling indicates that this may be a successful **surgical technique** for managing either intrinsic sphincter deficiency or urethral hypermobility, said its creator, Shlomo Raz, MD...

One of the biggest advantages of the **vaginal** sling is that it offers the hope of developing a single operation that works well...

...necessary because the surgical options for treatment of these two conditions are different. With the **vaginal** sling we are trying to explore whether one procedure can be useful for both types of incontinence,' commented Dr. Raz.

The easy-to-perform **vaginal procedure** combines a bladder neck **suspension** with another pair of **sutures placed** at the urethropelvic ligament in the midurethral area and the levator musculature fascia. Its design...

...bladder neck and urethra as well as the midurethral segment. The addition of the midurethral **sutures** may result in better surgical outcomes than those for standard bladder neck suspensions, according to...

...suspension, which does not address the fixation of the midurethral area to the symphysis, the **vaginal** sling procedure brings the urethra to the normal supported **position** below the inferior ramus of the symphysis,' he said.

'Furthermore, we feel that the **sutures** in the midurethral area may be also be beneficial because they increase the tensile forces...
...the most important area of continence,' he explained.

In women with intrinsic sphincter deficiency, the **vaginal** sling provides nonobstructive, elastic support and coaptation to the sphincteric unit by creating a rectangle of compression that is formed by the **vaginal wall** , the underlying fascia, and levator musculature. Although the **vaginal** sling has not been directly compared with other sling procedures in women with intrinsic sphincter...

...minimizing morbidity and hospital stays because it requires no abdominal incision. Women who undergo a **vaginal** sling procedure remain in the hospital only 12 to 24 hours postoperatively.

Success After Failures

Dr. Raz reported on a series of 86 patients who underwent the **vaginal** sling **procedure** for **treatment** of stress incontinence. All of the patients selected had had a number of other therapies fail, including behavior modification, oral medication, local injection of fat or collagen, or other **surgical procedures** .

With up to 2 years of follow-up available, an 'excellent' response - defined as no or exceptional stress incontinence - was obtained in **approximately** 94% of women, and another 1.4% had a 'very good' response

with only rare...
...abscesses, or fistula development.

'This is a preliminary report of our initial experience with the **vaginal wall** sling. The results are encouraging, but we are continuing to monitor these patients,' said Dr. Raz.

Sling **Technique**

For this **surgery** , the patient is **placed** in the lithotomy **position** . Two oblique incisions are made in the **vaginal wall** such that the apex is **located** just proximal to the urethral meatus and the base is extended **several** centimeters proximal to the **bladder** neck. Lateral dissection is performed along the glistening white periurethral fascia to the pubic bone ...

...dissection to perforate the endopelvic fascia. Then the urethra is mobilized by freeing the lateral **attachments** of the urethropelvic ligament form the tendinous arc of the obturator muscle. This procedure creates a rectangular island of anterior **vaginal wall** that underlies the bladder neck and urethra, retains its own vascular supply, and functions as the sling.

The four corners of the rectangle are **sutured** with nonabsorbable #1 polypropylene **sutures** as follows: at the level of the bladder neck, two **sutures** incorporate the pubocervical fascia, the **vaginal wall** without the **epithelium** , and the medial edge of the urethropelvic ligaments; at the distal corners of the rectangle, another pair of **sutures** incorporate the midurethral complex at the 3- and 9-o'clock **positions** , the urethropelvic **ligament** , and the **vaginal wall** without the **epithelium** .

The **sutures** are transferred individually from the **vagina** to the suprapubic region with a double-pronged ligature carrier through a 1-cm skin puncture that is superior to the pubic symphysis and extends down to the rectus fascia. **Placing** a finger in the retropubic space during **suture** transfer will protect the bladder and urethra from inadvertent penetration.

Indigo carmine is administered intravenously and then cystourethroscopy is performed to assure coaptation of the bladder neck, absence of **suture** penetration into the bladder, and normal excretion of urine. Finally, the **vaginal wall** is closed with a 2-0 polyglactin **suture** , the suprapubic puncture is repaired with a running subcuticular 4-0 polyglactin **suture** , and an antibiotic-impregnated pack is **placed** in the **vagina** .

Dr. Raz mentioned that women with intrinsic sphincter deficiency who have had undergone radiation therapy or who have poor-quality **vaginal** tissue should not be considered candidates for the **vaginal** sling. Their incontinence should be managed with a fascial sling instead.

Dr. Raz's coworkers on the **vaginal wall** sling

25/3,K/13 (Item 10 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)
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02793133 Supplier Number: 43748875 (USE FORMAT 7 FOR FULLTEXT)
Endoscopic Vaginal Prolapse **Repair Effective**
Urology Times, p3
April, 1993
Language: English Record Type: Fulltext
Document Type: Magazine/Journal; Trade
Word Count: 577

(USE FORMAT 7 FOR FULLTEXT)
Endoscopic Vaginal Prolapse **Repair Effective**
TEXT:
Vaginal /suprapubic approach can also eliminate incontinence

CHICAGO - A new endoscopic **procedure** for **repair** of **cystourethrocele** and pelvic organ prolapse effectively restores **pelvic floor** anatomy and cures accompanying incontinence without the need for more invasive **surgical procedures** , reports Nader Sadoughi, MD, professor of urology, Rush Medical School, here.

' **Cystocele** and pelvic organ prolapse are common clinical problems, especially among elderly women,' said Dr. Sadoughi. 'When associated with conditions such as urinary incontinence, **vaginal** mass, perineal pain, or recurrent urinary tract infections, the patient's quality of life may greatly diminish.'

Postsurgical Obstructions

Standard approaches to **cystocele** and various forms of **vaginal prolapse** include a **vaginal** hysterectomy with anterior colporrhaphy, or a hysterectomy with a Marshall-Marchetti bladder neck **suspension** . He noted, however, that these **procedures** may produce an obstruction of the proximal urethra and a narrowing of the bladder neck...

...neuromuscular dysfunction of the lower urinary tract may also result.

When urinary incontinence accompanies the **cystocele** , Dr. Sadoughi said failure rates for surgery run as high as 50%, and even when incontinence is not a factor before the operation, it may appear postoperatively. If the **surgeon** decides to perform a Burch **technique** and **paravaginal suspension** , the accompanying laparotomy may increase morbidity.

Uterus Is Preserved

In contrast, a combined **vaginal** and suprapubic approach offers a less invasive means of managing **uterovaginal prolapse** and associated incontinence while preserving the uterus, said Dr. Sadoughi, who has performed the technique on 30 patients over the past 3 years. If a hysterectomy is indicated, the **procedure** permits **suspension** of the **vaginal wall** and correction of the **prolapse** .

Approaching through the **vagina** , he makes three small incisions on the **vaginal wall** , two on the side of the cervix and one at the urethra, he explained. If...

...patient has undergone a previous hysterectomy, he makes two incisions at the apex of the **prolapsed vagina** . After **suturing** a Dacron patch in **place** , he brings the **sutures** into the submucosa, where they are then suspended in the lower part of the abdomen...

...basis.

'This technique can be readily modified according to individual circumstances and offers an enduring **method** for simultaneous **correction** of symptomatic **uterine prolapse** and **cystocele** , whether they are

accompanied by incontinence or not,' said Dr. Sadoughi.

Results Endure
Of 26...

...a central hiatus and denervation of the urethral sphincteric mechanism,' said Dr. Sadoughi.

Because a **prolapsed uterus** is usually atrophic, Dr. Sadoughi said the new approach offers an especially attractive therapeutic choice...

19930401

25/3,K/14 (Item 11 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)
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02747770 Supplier Number: 43679223 (USE FORMAT 7 FOR FULLTEXT)
Laparoscopy Offers Less Invasive Alternative Tx for Stress Incontinence
Urology Times, p12
March, 1993
Language: English Record Type: Fulltext
Document Type: Magazine/Journal; Trade
Word Count: 704

This extraperitoneal procedure, which elevates and repositions the bladder neck and proximal urethra with perivaginal **placement** of **suture** material, appears to combine the advantages of both conventional **vaginal** and supra-pubic approaches, according to Dr. Chapple, consultant urologic surgeon, Royal Hallamshire Hospital, Sheffield...

...requires only small incisions, while it is similar to open colposuspension because it allows accurate **vaginal suture placement** through direct visualization and repositions the urinary tract structures with apposition of the **vaginal wall** to the pubic arch. According to Dr. Chapple, it is this latter characteristic that may...

...in the success of the procedure, relying on the integrity of the nylon used to **suture** the anterior abdominal wall,' he explained.

In this same regard, Dr. Chapple stressed that the...

...with up to 18 months of follow-up. The mean duration of the operation was **approximately** 1.5 hours.

Describing the procedure in more detail, Dr. Chapple said that the patient is anesthetized and **placed** in the Lloyd-Davis **position** on the operating table. The bladder is catheterized and emptied; a Veress needle is **inserted** and the extraperitoneal retropubic space insufflated with CO(2).

A stab incision is made in the left iliac fossa **approximately** 10 cm lateral to the Veress needle for **insertion** of a 10-mm midline port for the laparoscope; a 5-mm lateral port is **inserted** at a parallel site in the right iliac fossa to contain the forceps. Dissection of the retropubic paraurethral space is completed through a combination of digital **vaginal** examination and dissection with laparoscopic instruments.

A size 1 synthetic absorbable **suture** (Dexon, Vicryl), is passed through the lower **insertion** of the rectus muscle into the retropubic space and is **guided** under direct vision through the **lateral vaginal** fornix. A second pass is made, also under direct vision, looping the **vaginal** mucosa. The **suture** is made with a specially designed needle that allows the **suture** material to be directly passed between the **vagina** and anterior abdominal **wall** and back without changing needles. Generally, two **sutures** are needed on both the left and right sides to attain adequate paraurethral **vaginal suspension** .

Adequacy of the **procedure** is checked by digitally elevating the **vagina** and 'railroading' it along the **inserted sutures** under direct laparoscopic examination; additional **sutures** are **placed** if needed. Cystoscopy is performed to confirm that the **sutures** do not traverse the bladder wall.

The **sutures** are then hand-tied and their final laparoscopic **position** confirmed. At the conclusion of the procedure, a stab suprapubic catheter is passed through the midline incision and a suction drain is **inserted** through the right iliac fossa incision into the retropubic space.

- Cheryl Guttman

Contributing Editor
PRODUCT NAMES: 8000419 (**Surgical Procedures** NEC)
19930301

25/3,K/17 (Item 14 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)
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01303219 Supplier Number: 41527260 (USE FORMAT 7 FOR FULLTEXT)
Cystourethropexy: Voiding Problems Noted: Obturator shelf repair suggested for reoperation in women
Urology Times, p4
Sept, 1990
Language: English Record Type: Fulltext
Document Type: Magazine/Journal; Trade
Word Count: 619

Cystourethropexy, whether performed by the retropubic or **vaginal** route, is successful about 90% of the time," said Dr. Kreder, who worked under George...

...in the study underwent a retropubic takedown - regardless of whether the original cystourethropexy was performed **vaginally** or retropubically - and all had substitute obturator shelf **repairs** performed.

In this **procedure** , the **vaginal wall** and fascia are sutured to the adjacent obturator internus muscle and fascia, usually with three...
PRODUCT NAMES: 8000419 (**Surgical Procedures** NEC)
19900901

25/3,K/64 (Item 23 from file: 149)
DIALOG(R)File 149:TGG Health&Wellness DB(SM)
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01693349 SUPPLIER NUMBER: 19309278 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Diagnosing and managing genitourinary prolapse.(Fortnightly Review)
Jackson, Simon; Smith, Phillip
British Medical Journal, v314, n7084, p875(6)
March 22,
1997
PUBLICATION FORMAT: Magazine/Journal ISSN: 0959-8146 LANGUAGE: English
RECORD TYPE: Fulltext; Abstract TARGET AUDIENCE: Professional
WORD COUNT: 3657 LINE COUNT: 00326

ABSTRACT: Genitourinary **prolapse** occurs when the **muscles** of the **pelvic floor collapse** , thereby removing structured support. Symptoms of **prolapse** may be noted during **vaginal** examinations and often cause urination or defecation complications. Pelvic exercises after child birth and assisted delivery may prevent prolapse. Treatment, including surgical repair, should commence in more serious cases. **Surgical technique** has advanced from excising to **reconstruction** without disturbing the functions of continence or intercourse.

TEXT:

Genitourinary prolapse occurs when faults develop in the mechanisms for **vaginal** and uterine support (fig 1). An understanding of these mechanisms and **systematic repair** of these faults will **restore** normal structure and function. Treatment of prolapse comprises about 20% of gynaecological surgical workload,(1) and with an aging, yet more active, population this contribution will increase. **Cystourethrocele** is seen most commonly, followed by **uterine descent** and **rectocele** . After a hysterectomy the **vagina** may be susceptible to **prolapse** owing to loss of support of the **vaginal vault** .

... to the term prolapse; these were reduced to 544 when we used the additional terms **vagina** , surgery, genitourinary, conservative, pessary, randomised, and outcome. We identified further references by hand searching relevant...

...The pelvic viscera are supported by the pelvic Door, with the pubococcygeal portion of the **levator ani** decussating around the lower **vagina** and urethra before **attaching** anteriorly to the pubic bone (fig 2). The **vaginal wall** consists of an inner **epithelial** lining surrounded by **endopelvic** fascia, which is composed of smooth muscle, elastin, and collagen and is **attached** to deeper pelvic supports. The cervix and upper third of the **vagina** are supported by the **uterosacral** and cardinal **ligaments** (part of the paracolpium). The middle third is **attached** by the pubocervical fascia to the arcus **tendineus** fasciae **pelvis** (the so called white line), which runs along the **pelvic floor** between the pubic symphysis and the ischial spine. The lower third is fused with the urogenital diaphragm, comprising the **levator ani** fascia, perineal membrane, and perineal body (fig 3).(2)

(Figures 2-3 ILLUSTRATION OMITTED)

Causes

The causes of genitourinary prolapse are summarised in the box.

Childbirth: **Vaginal** delivery results in **pelvic floor** dysfunction, which manifests as urinary incontinence.(3) It may also predispose to subsequent prolapse. This may occur secondary to mechanical damage, particularly after forceps deliveries(4) or denervation of the **pelvic floor** . The risk of denervation is increased by prolonged labour and large babies,(6) and prolapse is associated with such denervation.(7)

Connective tissue disease: Some women may have a congenital predisposition to prolapse because of abnormal collagen metabolism. Genitourinary prolapse is associated with joint hypermobility(8) and reduced **vaginal** collagen content.(9)

Latrogenic causes: Division of the **uterosacral** and cardinal **ligaments** without reattachment to the **vaginal** **vault** at the time of hysterectomy predisposes to subsequent **prolapse** of the **vaginal** **vault** 2 There is a further risk of enterocele after **vaginal** hysterectomy, probably due to inadequate **approximation** of the **uterosacral** **ligaments** at the time of surgery.

Symptoms

Some of the symptoms of genitourinary prolapse are given...

...box. Mild genitourinary prolapse may be an asymptomatic incidental finding noted at the time of **vaginal** examination. As such, it is best noted, but the patient should not be informed that...

...she mentions symptoms. Symptoms associated with more significant prolapse include feeling a lump within the **vagina** and observing a **bulge** if displacement is beyond the introitus. Displacement may result in dragging or aching discomfort, often localised to the back, and if **prolapse** is beyond the introitus **tissue** can become excoriated (decubitus ulcer), resulting in blood stained **vaginal** discharge.

Symptoms are often worse at the end of the day and after the patient ...

...standing for a long time. Coital problems, including loss of sensation and orgasm, dyspareunia, and **vaginal** flatus may be prominent General discomfort in the **vagina** postmenopausally is more often associated with **vaginal** atrophy than **prolapse** , and a trial of topical **vaginal** oestrogen treatment daily for four to six weeks should be considered if the prolapse is...

...to urethral hypermobility, although only 50% of women with genuine stress incontinence have clinically important **prolapse** of the anterior **vaginal** **wall** .(1) If **cystourethrocele** results in kinking of the urethra the urinary stream may be poor, with recurrent urinary...

...if voiding is incomplete. In extreme cases chronic urinary retention with overflow incontinence may ensue. **Rectocele** may cause difficulty with defaecation (dyschezia) or a sensation of incomplete defaecation, which is sometimes...

...introitus is observed after asking the patient to bear down.

(Figure 4 ILLUSTRATION OMITTED)

The **vaginal** **walls** , fornices, and cervix are then assessed by **inserting** a Sims' speculum along the posterior **vaginal** **wall** . Gentle retraction of the posterior **vaginal** **wall** affords a view of the cervix, lateral and anterior fornices, and anterior **vaginal** **wall** . If important **cystourethrocele** is present the view of the cervix will be obscured and reduction with an examining finger or sponge forceps is necessary. The posterior **vaginal** **wall** is then assessed by retracting the anterior **vaginal** **wall** .

Enterocele and **rectocele** are difficult to differentiate clinically, although with the patient standing a cough impulse indicating an enterocele can be appreciated on combined rectal and **vaginal** examination.

Prolapse can vary in extent from some movement on coughing (this being normal in parous women) to descent to or beyond the introitus. For many years **uterine** **descent** has been classed as grades 1-3. Grade 1 is **descent** within the **vagina** , grade 2 is **descent** of the cervix to the

introitus, and grade 3, or procidentia, is **descent** of the **uterus** outside the introitus. However, this classification is subjective and insensitive and takes no account of **cystocele** , enterocele, or **rectocele** . Detailed objective measures of the degree of prolapse are a prerequisite for evidence based studies...to be aware that other disease may occasionally be present (fig 5). With a large **cystocele** the ureterovesical junctions and lower ureters may descend, resulting in potential ureteric obstruction. Therefore, procidentia...

...and any suspected pelvic mass should be investigated. The value of defaecography to evaluate posterior **vaginal wall prolapse** is undecided.

(Figure 5 ILLUSTRATION OMITTED)

Management

Prevention

Childbirth--Appropriate management of labour may have...

...replacement therapy--Postmenopausal oestrogen supplementation increases skin collagen content(12) and causes trophic alterations in **vaginal epithelium** . Whether hormone replacement therapy increases the biomechanical strength of tissue or prevents the occurrence of genitourinary prolapse is unclear.

Pelvic exercises--Because of the anatomical **connections** between the **pelvic** floor, urethra, and **vagina** , exercising the **pelvic floor** may, in theory, prevent prolapse occurring secondary to **pelvic floor** laxity.

Conservative management

Incidental mild prolapse found at the time of routine pelvic examination, if...

...coughs is likely to ameliorate the condition.

Hormone replacement therapy--Hormone replacement therapy increases postmenopausal **vaginal** collagen turnover,(13) but whether spontaneous anatomical remodelling and repair of established prolapse can occur is unknown.

Pelvic floor exercises-- **Pelvic floor** exercises are an established treatment for urinary stress incontinence,(14) but whether they benefit established **prolapse** has not been studied.

Vaginal pessaries--Genitourinary **prolapse** can be reduced with **vaginal** pessaries (box). Pessaries may be appropriate while the patient is awaiting definitive surgery and when...

...they should be changed every six months to prevent erosion of or embedding in the **vaginal wall** . The use of oestrogen cream with **vaginal** pessaries reduces discomfort and erosion. Sizes vary, and the appropriate size is determined at the...

...by estimating the distance from the posterior aspect of the symphysis pubis to the posterior **vaginal** fornix. Occasionally, although the pessary seems to be the right size, rings will not stay in **place** . In this case a shelf pessary can be helpful, especially with vault prolapse or enterocele. As well as being used for definitive treatment **vaginal** pessaries can be used diagnostically: when it is unclear whether a patient's symptoms stem from **uterovaginal prolapse** the effect of reduction can be assessed by temporary **insertion** of a pessary. Relief of symptoms would then be an indication for surgery.

Surgery

Ideally...

...preserving continence. It is important to ask whether the woman is sexually active before considering **vaginal** surgery as this may alter the

surgical approach, or indeed defer surgery. Care not to reduce the **vaginal** capacity with overaggressive or repeated **vaginal** surgery is essential but has been overlooked in the past partly because of a failure to appreciate the underlying anatomical **defects** . A move towards reconstructive **vaginal** and abdominal surgery for **prolapse** and away from excisional, obliterative surgery should reduce this often hidden morbidity.

Types of repair

Anterior colporrhapy, otherwise known as anterior repair, has been the favoured operation for **cystocele** (fig 6). Colpoperineorrhaphy, or posterior repair, is favoured for **rectocele** . Care must be exercised when removing the redundant **vaginal** **epithelium** as **vaginal** narrowing can result in **severe** dyspareunia. This is common after posterior repair, particularly when mid- **vaginal** levator **sutures** have been **inserted** .(15) The **levator** **ani** muscles do not normally meet between the rectum and **vagina** , and **suturing** them together at the time of posterior repair will lead to coital pain. **Prolapse** of the anterior **vaginal** **wall** may be due to detachment of the **lateral** **vaginal** support to the arcus **tendineus** fascia **pelvis** . In this case **paravaginal** repair, either by the transvaginal or abdominal route, is gaining popularity.(16, 17)

(Figure 6 ILLUSTRATION OMITTED)

It has been asserted that surgical cure of some forms of **cystourethrocele** is associated with subsequent stress incontinence, perhaps secondary to an intrinsic problem with the sphincter...

...study has shown no evidence that bladder or urethral function is compromised by colporrhaphy or **vaginal** hysterectomy,(18) although excessive and unnecessary dissection of the bladder neck should be avoided in...

...who are continent

If there is concurrent urinary stress incontinence a Burch colposuspension will correct **cystocele** , as well as giving excellent long term urinary continence.(19) When **uterine** **prolapse** is present **vaginal** hysterectomy is the procedure of choice. This can be combined with anterior or posterior repair when, as is commonly the case, concurrent **cystocele** and **rectocele** are present Although uncommonly performed today, cervical amputation with a Manchester or Fothergill repair can be performed for mild **uterine** **descent** , especially when the cervix has become enlarged and conservation of the uterus is desired. A retrospective comparison of Manchester repair with **vaginal** hysterectomy for **uterine** **prolapse** found that both procedures had a similar outcome.(20)

Recurrence of problems

The incidence of...arise as a complication of the original surgery. Such examples include enterocele after Burch colposuspension, **cystocele** after sacrospinous fixation, and **rectocele** or enterocele after sacrocolpopexy. **Vaginal** **vault** **prolapse** will occur if the vault is not **secured** to the **uterosacral** **ligaments** at hysterectomy. Repair can be effected **vaginally** or suprapubically, and the patient's medical condition and wishes about sexual activity need to be considered when planning **surgery** .

The simplest **procedure** is colpocleisis, or occlusion of the **vaginal** lumen, which can be performed under local anaesthesia. This is appropriate only for sexually inactive...

...and is a useful technique in frail elderly women. Sacrospinous fixation, with stitching of the **vaginal** cuff to the **sacrospinous** **ligament** , does not alter **vaginal** capacity, and recovery time is quick as it is a **vaginal** repair. Although infrequent, complications are serious as damage can occur to the pudendal artery, pudendal nerve, or sciatic nerve.

Injuries may be minimised by avoiding the lateral third of the **sacrospinous ligament** and **placing** the stitch superficially.(23) One year cure rates of 90% have been reported with this technique.(24)

Sacrocolpopexy uses the abdominal approach, the **vaginal vault** being **attached** by non-absorbable mesh to the sacral promontory.(25) **Vaginal** anatomy is not distorted, but this procedure also carries the risk of haemorrhage from the...

...88%-97% have been reported between one and 10 years.(26, 27) Alternatively, the Zacharin **procedure corrects** the anatomical defect by closing the levator hiatus and **suturing** the **vagina** to the levator plate.(28) It entails more extensive dissection than colposacropexy, and a retrospective comparison of the two **procedures** , both performed by the same **surgeon** , has shown colposacropexy to have superior result.(29) Laparoscopic sacrocolpopexy has also been described,(30...

...data are available.

Outcome measures

We did not find any studies that had examined different **surgical techniques** in a prospective controlled manner. In addition to the procedure performed, outcome may depend on...

...of the tissues. Improving tissue quality preoperatively with oestrogen has been assessed in one randomised **placebo** controlled trial.(31) **Vaginal wall** thickness was increased and the incidence of postoperative cystitis decreased. Long term outcome was not...

...misplaced satisfaction with established practice. However, early studies of recurrence rates and coital satisfaction after **vaginal** surgery suggest that a hidden morbidity needs to be considered. Until recently, no scientific methodology...

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RELATED ARTICLE: Summary points

* Minor...

...prolapse should be treated conservatively

* Sexual activity should be borne in mind when considering appropriate **surgical procedures**

* Long term results of **surgery** for prolapse are uncertain

* There is little published work comparing alternative procedures and techniques

* Reconsideration...

...of genitourinary prolapse

Childbirth: Large babies Long labours Assisted delivery Poor postnatal exercise regimens

Congenital: **Connective** tissue disease

Iatrogenic: Hysterectomy

Increased intra-abdominal pressure: Obesity Chronic respiratory disease Pelvic masses

RELATED ARTICLE: Symptoms of genitourinary prolapse

Cystourethrocele : Urinary stress incontinence Urinary retention Recurrent urinary tract infections

Uterine prolapse : Backache Difficulty keeping tampons in Ulceration if procedentia

Rectocele : Dyschezia Constipation

Any prolapse: Lump coming down Coital difficulties--dyspareunia, loss of **vaginal** sensation, **vaginal** flatus

RELATED ARTICLE: Indications for use of **vaginal** pessaries

* If patient is medically unfit for surgery

* To gain relief from symptoms while awaiting...

...be due to prolapse
* As a diagnostic test to ensure that correction of a large **cystourethrocele** would not cause stress incontinence
Department of Obstetrics and Gynaecology, Southmead Hospital, Bristol BS10 5NB...

...DESCRIPTORS: **Vagina** --
19970322

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Set      Items   Description
S1       11688   VAGIN? OR PARAVAGIN?
S2      825757   (METHOD? OR SYSTEM? OR TECHNIQ? OR PROCESS? OR PROCEDUR?)(-
             5N)(SURG? OR CHIRURG? OR MEDIC? OR OPERAT? OR REPAIR? OR REPA-
             RAT? OR TREAT? OR REBUIL? OR FIX OR FIXE? OR FIXING OR OVERHA-
             UL? OR RECONSTRUCT?)
S3      152506   (METHOD? OR SYSTEM? OR TECHNIQ? OR PROCESS? OR PROCEDUR?)(-
             5N)(SUSPEN? OR MEND? OR RECTIF? OR REMED? OR CORRECT? OR CURE?
              OR CURING OR RESTOR?)
S4        1942   (METHOD? OR SYSTEM? OR TECHNIQ? OR PROCESS? OR PROCEDUR?)(-
             5N)(RECONSTIT? OR REHABIL? OR VAGINOPLAST? OR PARAVAGINOPLAST-
             ?)
S5          32   (INFERIO? OR SUPERIO?)()LATERAL? OR LATERAL?()SULC? OR VAG-
             IN?()SULC? OR PARAVAGIN?()SULC? OR LATERAL?()(VAGIN? OR PELVI-
             ?)
S6         882   (PELVI? OR UTER? OR VAGIN? OR PARAVAGIN?)(3N)(FLOOR? OR SI-
             DEWALL? OR SIDE()WALL? OR WALL? OR VAULT? OR EPITHEL?) OR LEV-
             ATOR()(ANI OR ANIS)
S7          45   (VAGIN? OR PARAVAGIN? OR SACROSPIN? OR PELVI?)(5N)(LIGAMEN-
             T? OR TENDON? OR TENDIN? OR SINEW?)
S8          31   CYSTOCEL? OR RECTOCEL? OR VESICOCEL? OR CYSTOURETHROCEL? OR
              URETHROCEL?
S9        2892   (EPITHEL? OR EPIDERM? OR SKIN? OR TISSUE? OR MUSCL? OR FAS-
             CIA? OR VAGIN? OR PARAVAGIN? OR BLADDER? OR UTER?)(5N)(LAX OR
             TORN? OR TEAR? OR STRETCH? OR RIPPED OR LACERAT? OR HERNIA? OR
              DISTEN?)
S10       4688   (EPITHEL? OR EPIDERM? OR SKIN? OR TISSUE? OR MUSCL? OR FAS-
             CIA? OR VAGIN? OR PARAVAGIN? OR BLADDER? OR UTER?)(5N)(SEVER?
             OR OVEREXTEN? OR PROLAPS? OR COLLAPS? OR DEFECT? OR BULG? OR -
             PROTRUS? OR PROTRUD? OR MALPOSITION?)
S11    4484338   PLACE? OR PLACING OR LOCAT? OR SITUAT? OR EMPLAC? OR IMPLA-
             C? OR EMPLANT? OR IMPLANT? OR ENGRAFT? OR GRAFT? OR POSITION?
             OR AFFIX?
S12    5933300   CONNECT? OR ATTACH? OR FASTEN? OR SECURE? OR SECURING? OR -
             INSERT? OR LOCK? OR APPROXIMAT?
S13     564376   FIXAT?(3N)(DEVIC? OR APPARAT? OR TOOL? OR IMPLEMENT? OR IN-
             STRUMENT? OR EQUIPM? OR UTENSIL? OR APPLIANC?) OR ANCHOR? OR -
             SCREW? OR SUTUR? OR CLEAT?
S14     463844   STAPL? OR TACK? OR BRAD? OR RIVET? OR FASTENER? OR TOGGLE?
             OR CONNECTOR? OR CONNECTER?
S15      62459   TEMPLAT? OR STENCIL? OR EXEMPLAR? OR PROTOTYP?
S16     253464   IC=(A61B? OR A61D?)
S17       1847   S1 AND S2:S4
S18        125   S17 AND S5:S7
S19         57   S17 AND S8:S10
S20        155   S18:S19
S21         81   S20 AND S16
S22        155   S20:S21
S23         26   S22 AND S11:S12(10N)S13:S14
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File 350:Derwent WPIX 1963-2004/UD,UM &UP=200462
         (c) 2004  Thomson Derwent
? pause
?
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27/3,K/5 **(Item 5 from file: 350)**
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.

016261600 **Image available**
WPI Acc No: 2004-419494/200439
Related WPI Acc No: 2000-441827; 2004-011430; 2004-448912
XRPX Acc No: N04-332982

Implant **for supporting anatomical structure, has** anchor **mechanisms advanceable through soft tissue mass in first direction and selectively positionable at target site and resistant to movement in opposite direction**

Patent Assignee: BENDEREV T V (BEND-I)
Inventor: BENDEREV T V
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20040106847	A1	20040603	US 98197938	A	19981123	200439 B
			US 2000733455	A	20001208	
			US 2003466330	A	20030730	
			US 2003679131	A	20031003	

Priority Applications (No Type Date): US 2003679131 A 20031003; US 98197938 A 19981123; US 2000733455 A 20001208; US 2003466330 A 20030730
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20040106847	A1		29	A61F-002/00	CIP of application US 98197938
					CIP of application US 2000733455
					CIP of application US 2003466330
					CIP of patent US 6200330

23 NOV 1998

Implant **for supporting anatomical structure, has** anchor **mechanisms advanceable through soft tissue mass in first direction and selectively positionable at target site**...

Abstract (Basic):
... The **implant** includes **anchor** mechanisms (506) respectively formed at the ends of a segment of material. The anchor mechanism...
... b) a **method** for **surgically** implanting a sling beneath an anatomical structure...

...c) a method for performing **vaginofixation** of a **prolapsed** or partially **prolapsed** **vagina** ; and...

...for a given quantity of mass or weight as may be necessary for a given **surgical procedure** . Eliminates necessity of requiring any **anchoring** mechanism to be **inserted** into the bone...

...The figure shows the perspective side view of the **suture** having plurality of **affixation** devices...

27/3,K/30 **(Item 30 from file: 350)**
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.

015086213 **Image available**
WPI Acc No: 2003-146731/200314
XRPX Acc No: N03-115811
Method **for** surgical treatment **of stress incontinence of urine in women by applying intact part of** vaginal wall
Patent Assignee: SIYUKHOV E M (SIYU-I)
Inventor: SIYUKHOV E M
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
RU 2195202	C2	20021227	RU 98107470	A	19980413	200314	B

13 APRIL 1998 FD

Priority Applications (No Type Date): RU 98107470 A 19980413
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
RU 2195202	C2			A61B-017/00	

Method **for** surgical treatment **of stress incontinence of urine in women by applying intact part of** vaginal wall

PUBLISHED 12/2002

Abstract (Basic):
... One should fix the part of **vaginal** mucosa to the aponeurosis of anterior abdominal wall and use that part of **vaginal** mucosa being right above vesicourethral segment. Moreover, the part of **vaginal** mucosa is isolated from **vaginal walls** from all the sides by not removing it against underlying **tissues** . **Vaginal defect** is sutured above mucosal part.
...Title Terms: **VAGINAL** ;
International Patent Class (Main): **A61B-017/00**

27/3,K/36 (Item 36 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.

014743846 **Image available**
WPI Acc No: 2002-564551/200260
XRPX Acc No: N02-446790
Surgical method **for** treating **the cases of falling of the womb and incomplete** prolapse **of the** uterus
Patent Assignee: TRUBINA T B (TRUB-I); UNIV BASHKIR MED (UYBA-R)
Inventor: GLEBOVA N N; TRUBIN V B; TRUBINA T B
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
RU 2184503	C2	20020710	RU 98120195	A	19981110	200260	B

Priority Applications (No Type Date): RU 98120195 A 19981110
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
RU 2184503	C2			A61B-017/42	

Surgical method **for** treating **the cases of falling of the womb and incomplete** prolapse **of the** uterus

Abstract (Basic):
... Method involves separating triangular flap from the **vagina** with external surface of the uterine cervix being involved. Incision is continued around the whole...

...are cut wedge- like. Rectangular mucous flaps are separated turned with one side towards the **vagina** . The injured portion of the uterine cervix around the external ostium of the uterine cervix...

...each other in front of the uterus. The neighboring flaps are used when putting-in **sutures** . The **sutures** are put in beginning from the **position** o.5 cm remote from the external angle of a flap. Ligature end is conducted...
... Enhanced effectiveness in restoring uterus cervix and **vagina** functions. 4 dwg...
International Patent Class (Main): **A61B-017/42**

10 Nov 1998 FD

PUB 7/2002

Complete abstract beneath

DERWENT-ACC-NO: 2002-564551

DERWENT-WEEK: 200260

COPYRIGHT 1999 DERWENT INFORMATION LTD

TITLE: Surgical method for treating the cases of falling of the womb and incomplete prolapse of the uterus

INVENTOR: GLEBOVA, N N; TRUBIN, V B ; TRUBINA, T B

PATENT-ASSIGNEE: TRUBINA T B[TRUBI] , UNIV BASHKIR MED[UYBAR]

PRIORITY-DATA: 1998RU-0120195 (November 10, 1998)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
RU 2184503 C2	July 10, 2002	N/A	000	A61B 017/42

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO	APPL-DATE
RU 2184503C2	N/A		
1998RU-0120195		November 10, 1998	

INT-CL (IPC): A61B017/42

ABSTRACTED-PUB-NO: RU 2184503C

BASIC-ABSTRACT:

NOVELTY - Method involves separating triangular flap from the vagina with external surface of the uterine cervix being involved. Incision is continued around the whole uterine cervix through ruptures. Rupture boundaries are cut wedge- like. Rectangular mucous flaps are separated turned with one side towards the vagina. The injured portion of the uterine

cervix around the
external ostium of the uterine cervix is excised as cone turned towards the
internal ostium of the uterus. The sutures are put layer-by-layer on the
muscle tissue of renewed rupture edges. Cardinal ligaments are cut, legated
and sutured to each other in front of the uterus. The neighboring flaps are
used when putting-in sutures. The sutures are put in beginning from the
position o.5 cm remote from the external angle of a flap. Ligature end is
conducted from the cervical canal through the whole thickness of the muscular
cervix tissue layer to the separated mucous membrane of the cervix 1.5- 2 cm
higher and somew hat outward from the first pierce. Then, the other end of the
same ligature and the ligature path is repeated near the first one using an
adjacent flap. The ligature ends are tied connecting in this way the lateral
edges of the separated flaps radially in the 12 o'clock position and at the
places of former ruptures. External edges of the flaps are turned down into
the cervical canal. Anterior colporrhaphy is carried out. Posterior
colporrhaphy with perineolevatoroplastic repair are carried out.

USE - Medicine.

ADVANTAGE - Enhanced effectiveness in restoring uterus cervix and vagina
functions. 4 dwg

CHOSEN-DRAWING: Dwg.1/1

TITLE-TERMS: SURGICAL METHOD TREAT CASE FALL WOMB INCOMPLETE PROLAPSE UTERINE

DERWENT-CLASS: P31

SECONDARY-ACC-NO:
Non-CPI Secondary Accession Numbers: N2002-446790

27/3,K/41 (Item 41 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.

014580794 **Image available**
WPI Acc No: 2002-401498/200243
XRPX Acc No: N02-314667
Method **for** fixing vagina **stump after performing uterus extirpation**
Patent Assignee: MILITARY CLINICAL HOSPITAL (MILI-R)
Inventor: ABASHIN V G; DEVYATOV A S; LITVINOV A M
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
RU 2181569	C2	20020427	RU 98122911	A	19981218	200243	B

Priority Applications (No Type Date): RU 98122911 A 19981218
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
RU 2181569	C2			A61B-017/42	

Method **for** fixing vagina **stump after performing uterus extirpation**

Abstract (Basic):
... in paravesical fat on both sides after performing uterus extirpation in the cases of ptosed **vagina walls** and relative enuresis condition. The **vagina** stump is fixed through the tunnels to posterior surface of the pubic bone in the...
... Enhanced effectiveness of **vagina** position adjustment. 1 dwg, 1 tbl...
...Title Terms: **VAGINAL** ;
International Patent Class (Main): **A61B-017/42**

18 Dec 1998 FD

PUBLISHED 4/2002

27/3,K/45 (Item 45 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.

014373463 **Image available**
WPI Acc No: 2002-194166/200225
XRPX Acc No: N02-147371
Surgical method **for preventing urinary bladder atonia in women cancer patients subjected to combined operations on the rectum**
Patent Assignee: ST PETERSBURG POST-DIPLOMA EDUCATIONAL (SPET-R)
Inventor: GLUSHKOV N I; GULYAEV A V; MAMAZHANOV T M; SOBITALIEV O E
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
RU 2178267	C2	20020120	RU 99103220	A	19990217	200225	B

Priority Applications (No Type Date): RU 99103220 A 19990217
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
RU 2178267	C2			A61B-017/00	

Surgical method **for preventing urinary bladder atonia in women cancer patients subjected to combined operations on the...**

Abstract (Basic):
... Method involves removing posterior **vagina wall** and/or **uterus** . Round **ligaments** of the uterus are sutured to the urinary bladder. First, the ligaments are shortened and...
International Patent Class (Main): **A61B-017/00**
International Patent Class (Additional): **A61B-017/42**

17 FEB 1999 FD
PUBLISHED 1/2002

27/3,K/53 (Item 53 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.

013651314
WPI Acc No: 2001-135526/200114
XRPX Acc No: N01-098533
Method **for** reconstructing **injured tendon of deep flexor in critical zone in combination with injuries of both superficial flexor pedicles**
Patent Assignee: TARTARSTAN RESTORATIVE TRAUMATOLOGY (TART-R)
Inventor: MIKUSEV G I; MIKUSEV I E
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
RU 2158559	C2	20001110	RU 98118661	A	19981012	200114	B

Priority Applications (No Type Date): RU 98118661 A 19981012
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
RU 2158559	C2			A61B-017/56	

Method **for** reconstructing **injured tendon of deep flexor in critical zone in combination with injuries of both superficial...**

Abstract (Basic):
... of the deep flexor is brought close to the distal end pulling it along the **tendon vagina** using excised fragment of the superficial flexor. The distal end of the superficial flexor is cut off. **Locking** removable **suture** is applied to the injured deep flexor in end-to-end mode.
... Prevented infection spread along the **tendon vagina** ; simplified transfer of central deep flexor tendon end from palm to finger...
International Patent Class (Main): **A61B-017/56**

12 OCT 98 FD
11/2000 PUBLISHED

related case to inventor

27/3,K/54 **(Item 54 from file: 350)**
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.

013565391 **Image available**
WPI Acc No: 2001-049598/200106
XRPX Acc No: N01-038061
System **for soft tissue** reconstructive surgery , **has applicator which** inserts **soft tissue** fixation device **which fixes at least two intact anatomic soft tissue structures**
Patent Assignee: ROSENBLATT P L (ROSE-I)
Inventor: ROSENBLATT P L
Number of Countries: 090 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200057796	A1	20001005	WO 2000US8704	A	20000331	200106 B
AU 200041878	A	20001016	AU 200041878	A	20000331	200106

Priority Applications (No Type Date): US 99163305 P 19991103; US 99127104 P 19990331; US 99154763 P 19990920
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200057796	A1	E	73	A61B-017/064	

Designated States (National): AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ TZ UG ZW

AU 200041878 A A61B-017/064 Based on patent WO 200057796
System **for soft tissue** reconstructive surgery , **has applicator which** inserts **soft tissue** fixation device **which fixes at least two intact anatomic soft tissue structures**

Abstract (Basic):
... An applicator (650) **inserts** a soft tissue **fixation device** from a first anatomic structure into a second anatomic structure and fixedly positions the device...
... a) **method** for soft tissue **reconstruction** ;
(...

...c) soft tissue **fastener** system...

...d) **method** of **surgical paravaginal repair** ;
(...

...e) method for diagnosing **pelvic floor** defect...

...damage caused and guides positioning of the applicator accurately due to provision of series of **templates** .

International Patent Class (Main): **A61B-017/064**

27/3,K/57 **(Item 57 from file: 350)**
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.

013473819
WPI Acc No: 2000-645762/200062
XRPX Acc No: N00-478516
Method **for doing** operations **in cases of carcinoma of uterine cervix**
Patent Assignee: ROST ONCOLOGY RES INST (ROON-R); SIDORENKO Y S (SIDO-I)
Inventor: SIDORENKO YU S
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
RU 2148965	C1	20000520	RU 96115980	A	19960731	200062	B

Priority Applications (No Type Date): RU 96115980 A 19960731
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
RU 2148965	C1			A61B-017/42	

Method **for doing** operations **in cases of carcinoma of uterine cervix**

Abstract (Basic):
... Method involves catching infundibulopelvic ligament, **tearing** internal sheet of the broad **uterine** ligament near its base. Peritoneum **tearing** is continued over the infundibulopelvic ligament. Peritoneum is dissected over the round ligament of the uterus 2-3 cm below the place it enters the **uterus wall** . Peritoneum is cut in vesicouterine space to the infundibulopelvic ligament of the opposite side of...

...is carried out. No n-suturedspace of the uterine cervix stump is circularly opposed to **vagina** stump. The uterine cervix stump is sutured to the **vagina** stump. The dissected peritoneum of the small pelvis is sutured.
International Patent Class (Main): **A61B-017/42**

31 JULY 96
FD
5/2000
PUBLISHED

27/3,K/62 **(Item 62 from file: 350)**
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.

013214127 **Image available**
WPI Acc No: 2000-386001/200033
XRPX Acc No: N00-288882
Method **for performing plastic** repair **of vesicovaginal fistula**
Patent Assignee: GALEEV R K (GALE-I); SUSLOVA V I (SUSL-I)
Inventor: GALEEV R K; SUSLOVA V I
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
RU 2135099	C1	19990827	RU 97118503	A	19971028	200033	B

Priority Applications (No Type Date): RU 97118503 A 19971028
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
RU 2135099	C1			A61B-017/00	

Method **for performing plastic** repair **of vesicovaginal fistula**

Abstract (Basic):
... The ligatures are attached to catheter. The ligatures are brought through fistula canal towards the **vagina** . Danotti suture is put in on the renewed fistula borders facing the urinary bladder. The turned-inside-out fistula canal tissues are exsected at the **vaginal** stage. Danotti suture is put in on the **vaginal wall** .
International Patent Class (Main): **A61B-017/00**

28 OCT 97 FD
PUBLISHED 8/1999

27/3,K/63 **(Item 63 from file: 350)**
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.

013143597
WPI Acc No: 2000-315469/200027
XRPX Acc No: N00-236751
Laparoscopy method **for** treating **the cases of falling of the womb and colpoptosis aggravated with urinary exertional incontinence**
Patent Assignee: ISHCHENKO A I (ISHC-I); MOSC MED ACAD (MOME-R)
Inventor: ISHCHENKO A I; SLOBODYANYUK A I
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
RU 2129839	C1	19990510	RU 98113688	A	19980707	200027	B

Priority Applications (No Type Date): RU 98113688 A 19980707
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
RU 2129839	C1			A61B-017/00	

Laparoscopy method **for** treating **the cases of falling of the womb and colpoptosis aggravated with urinary exertional incontinence**

Abstract (Basic):
... glue is introduced in the amount of 0.4-0.6 ml. Then, the anterior **wall** of the **vagina** is pressed against posterior pubic surface. Douglas cavity is closed by suturing the sacrouterine ligaments, anterior wall of the rectum and posterior **wall** of the **vagina** . Proximal ends of the flaps are drawn for the uterine to assume the natural physiological **position** . The flap ends are **sutured** to one another. Colporrhaphy is carried out.
International Patent Class (Main): **A61B-017/00**
International Patent Class (Additional): **A61B-017/42**

7 JULY 98 FD

PUBLISHED 5/1999

27/3,K/68 (Item 68 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.

012804371 **Image available**
WPI Acc No: 1999-610601/199952
XRPX Acc No: N99-449904
Suturing **instrument for applying** sutures **to tissue to** approximate **sides of tissue wound in e.g. open, mini-incision, trans-** vaginal **, or endoscopical** surgical procedures
Patent Assignee: BOSTON SCI LTD (BOST-N); SCIMED LIFE SYSTEMS INC (SCIM-N); KORTENBACH J A (KORT-I)
Inventor: GELLMAN B N; KORTENBACH J A; MCBRAYER M S; SATER G; BIRD E; SATER G A
Number of Countries: 086 Number of Patents: 011
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 9947050	A2	19990923	WO 99US6085	A	19990319	199952	B
AU 9931942	A	19991011	AU 9931942	A	19990319	200008	
US 6096051	A	20000801	US 9878916	P	19980320	200039	
			US 99273117	A	19990319		
EP 1067872	A2	20010117	EP 99913990	A	19990319	200105	
			WO 99US6085	A	19990319		
US 20010049537	A1	20011206	US 9878916	P	19980320	200203	
			US 99273117	A	19990319		
			US 2000579455	A	20000526		
			US 2001925957	A	20010809		
JP 2002506667	W	20020305	WO 99US6085	A	19990319	200220	
			JP 2000536294	A	19990319		
AU 744956	B	20020307	AU 9931942	A	19990319	200229	
AU 200245875	A	20020801	AU 200245875	A	20020607	200261	N
US 6454778	B2	20020924	US 9878916	P	19980320	200266	
			US 99273117	A	19990319		
			US 2000579455	A	20000526		
			US 2001925957	A	20010809		
US 6551329	B1	20030422	US 9878916	P	19980320	200330	
			US 99273117	A	19990319		
			US 2000579455	A	20000526		
US 20040002720	A1	20040101	US 9878916	P	19980320	200402	
			US 99273117	A	19990319		
			US 2000579455	A	20000526		
			US 2003365277	A	20030212		

Priority Applications (No Type Date): US 9878916 P 19980320; US 99273117 A 19990319; US 2000579455 A 20000526; US 2001925957 A 20010809; AU 200245875 A 20020607; US 2003365277 A 20030212
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 9947050	A2	E	35	A61B-017/04	
Designated States (National): AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZA ZW					
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ UG ZW					
AU 9931942	A				Based on patent WO 9947050
US 6096051	A			A61B-017/04	Provisional application US 9878916
EP 1067872	A2	E		A61B-017/04	Based on patent WO 9947050
Designated States (Regional): DE FR GB IE NL					
US 20010049537	A1			A61B-017/12	Provisional application US 9878916

				Div ex application US 99273117 Div ex application US 2000579455 Div ex patent US 6096051
JP 2002506667	W	45	A61B-017/04	Based on patent WO 9947050
AU 744956	B		A61B-017/04	Previous Publ. patent AU 9931942 Based on patent WO 9947050
AU 200245875	A		A61B-001/005	Div ex patent AU 744956
US 6454778	B2		A61B-017/04	Provisional application US 9878916 Div ex application US 99273117 Div ex application US 2000579455 Div ex patent US 6096051
US 6551329	B1		A61B-017/04	Provisional application US 9878916 Div ex application US 99273117 Div ex patent US 6096051
US 20040002720	A1		A61B-017/04	Provisional application US 9878916 Div ex application US 99273117 Div ex application US 2000579455 Div ex patent US 6096051 Div ex patent US 6551329

Suturing **instrument for applying** sutures **to tissue to** approximate **sides of tissue wound in e.g. open, mini-incision, trans-** vaginal , **or endoscopical** surgical procedures

Abstract (Basic):
... Used in **surgical procedures** , such as burch colposuspension, sacrospinous **vaginal vault** suspension, **paravaginal** repair, radical prostatectomy, sub-urethal sling, oopherectomy, myomectomy, nissen fundoplication, cholecystectomy, and urethral anastomosis...
... **Suture** can be **inserted** through body tissue in a quick and easy manner. Elongated body can be bent and
...Title Terms: **VAGINAL** ;
International Patent Class (Main): **A61B-001/005** ...

... **A61B-017/04** ...

... **A61B-017/12**
International Patent Class (Additional): **A61B-001/00** ...

... **A61B-017/06**

27/3,K/69 (Item 69 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.

012190875
WPI Acc No: 1998-607788/199851
XRPX Acc No: N98-472765
Surgical procedure **for** treating **rectovaginal fistulae - turning edges of fistula passage into** vagina **and rectum and applying titanium nickelide clips.**
Patent Assignee: UNIV SIBE MED (UYSI-R)
Inventor: KUTSENKO I G
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
RU 2106114	C1	19980310	RU 9434746	A	19940909	199851	B

Priority Applications (No Type Date): RU 9434746 A 19940909
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
RU 2106114	C1		3	A61B-017/00	

Surgical procedure **for** treating **rectovaginal fistulae**...

...**turning edges of fistula passage into** vagina **and rectum and applying titanium nickelide clips.**

...Abstract (Basic): The procedure consists of separating the rear **wall** of the **vagina** from the front **wall** of the rectum by a transverse incision, cutting through the fistula passage and suturing the...

...The edges of the fistula passage are turned inside the **vagina** and rectum and fastened with clips of titanium nickelide, which have a shape memory effect...

...porous plate becomes overgrown with natural tissue, makng for reliable separation of the rectal and **vaginal** sutures, reducing the risk of post-operative complications...
...Title Terms: **VAGINAL** ;
International Patent Class (Main): **A61B-017/00**

9 SEPT 94
FD
3/98
PUBLISHED

27/3,K/70 (Item 70 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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012175623 **Image available**
WPI Acc No: 1998-592534/199850
XRPX Acc No: N98-461043
Plastic surgery procedure **for** repairing **sphincter and levator and restoring structures of perineum -** connecting **tissues with removable** sutures **in set sequence.**
Patent Assignee: GORBAN V A (GORB-I)
Inventor: GORBAN V A; PAVLENKO S G; SHESTAKOV I A
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
RU 2103923	C1	19980210	RU 9430854	A	19940803	199850	B

Priority Applications (No Type Date): RU 9430854 A 19940803
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
RU 2103923	C1		4	A61B-017/00	

Plastic surgery procedure **for** repairing **sphincter and levator and restoring structures of perineum**...

... connecting **tissues with removable** sutures **in set sequence.**

...Abstract (Basic): of joining together the tissues the following sequence: the levator and its fascia, the rear **wall** of the **vagina** and levator to the fascia on the opposite side, then the levators with the front...
International Patent Class (Main): **A61B-017/00**

2/1998 PUBLISHED

27/3,K/71 (Item 71 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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012101926
WPI Acc No: 1998-518837/199844
XRPX Acc No: N98-405116
Surgical procedure **for** repairing **recto-** vaginal **fissure - fitting porous titanium-nickelide plate impregnated with antibiotics into recto-** vaginal **septum.**
Patent Assignee: UNIV SIBE MED (UYSI-R)
Inventor: KUTSENKO I G
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
RU 2106810	C1	19980320	RU 9434747	A	19940909	199844	B

3/98 PUBLISHED

Priority Applications (No Type Date): RU 9434747 A 19940909
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
RU 2106810	C1		3	A61B-017/00	

Surgical procedure **for** repairing **recto-** vaginal **fissure**...

...**fitting porous titanium-nickelide plate impregnated with antibiotics into recto-** vaginal **septum.**

...Abstract (Basic): The **procedure** , designed for **treating** a recto-**vaginal** fissure caused by a third degree post-partum tear in the perineum, consists of separating the rear **wall** of the **vagina** from the front **wall** of the rectum by a transverse incision and excising scar tissue...

...is performed, cutting a wedgeshaped flap with the remaindrr of the fissure from the rear **wall** of the **vagina** , and suturing the wound in a transverse direction. In addition, the recto- **vaginal** septum is fitted with a porous plate made from titanium nickelide, impregnated with anti-biotics...

...porous plate becomes filled with surrounding tissues, making for reliable separation of the rectal and **vaginal** sutures and creating a local repository for antibiotics. It avoids post-operating complications resulting from wound suppuration, the separation of **sutures** or rejection of the **implant** .

International Patent Class (Main): **A61B-017/00**

27/3,K/82 (Item 82 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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Good!!

010599028
WPI Acc No: 1996-095981/199610
XRPX Acc No: N96-080212
Treatment procedure **for** uterus **position** defects **and descended** vaginal walls **- inserting clamps through incision above pubis to draw round ligaments of uterus to surface and fix them to straight abdominal muscle aponeurosis**
Patent Assignee: MED ACAD FOR FURTHER TRAINING (MEDI-R)
Inventor: BAKULEVA L P; KARAMYSHEV V K; KULAKOV V I
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
RU 2036618	C1	19950609	SU 5062283	A	19921009	199610	B

PUBLISHED 6/1995

Priority Applications (No Type Date): SU 5062283 A 19921009
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
RU 2036618	C1		4	A61B-017/42	

Treatment procedure **for** uterus **position** defects **and descended** vaginal walls -
...Abstract (Basic): The procedure consists of creating an access to the **vagina** through the straight abdominal muscle, its aponeurosis and peritoneum, drawing the round ligaments of the...
...Title Terms: **VAGINAL** ;
International Patent Class (Main): **A61B-017/42**

Complete abstract beneath

DERWENT-ACC-NO: 1996-095981

DERWENT-WEEK: 199610

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TITLE: Treatment procedure for uterus position defects and descended vaginal walls - inserting clamps through incision above pubis to draw round ligaments of uterus to surface and fix them to straight abdominal muscle aponeurosis

INVENTOR: BAKULEVA, L P; KARAMYSHEV, V K ; KULAKOV, V I

PATENT-ASSIGNEE: MED ACAD FOR FURTHER TRAINING[MEDIR]

PRIORITY-DATA: 1992SU-5062283 (October 9, 1992)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
RU 2036618 C1	June 9, 1995	N/A	004	A61B 017/42

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO	APPL-DATE
RU 2036618C1	N/A		
1992SU-5062283		October 9, 1992	

INT-CL (IPC): A61B017/42

ABSTRACTED-PUB-NO: RU 2036618C

BASIC-ABSTRACT:

The procedure consists of creating an access to the vagina through the straight abdominal muscle, its aponeurosis and peritoneum, drawing the round ligaments of the uterus towards the front surface of the aponeurosis

and fixing them
together with the aponeurosis.

The operation is preceded by laparoscopy, after which a suprapubic incision is
made through the skin some 2-3 cm. in length up to the straight abdominal
muscle aponeurosis. Clamps are then inserted into the abdominal cavity in the
region of the incision's edges, and the round ligaments of the uterus are
clamped and drawn to the surface under the control of the laparoscope.

ADVANTAGE - Reduced trauma to front wall of abdomen, avoids complications such
as adhesions and hernias, and cuts operating time by half, i.e. to 20-25 mins.
Bul. 16/9.6.95

CHOSEN-DRAWING: Dwg.0/0

TITLE-TERMS: TREAT PROCEDURE UTERINE POSITION DEFECT VAGINAL WALL INSERT CLAMP
THROUGH INCISION ABOVE DRAW ROUND LIGAMENT UTERINE SURFACE FIX
STRAIGHT ABDOMEN MUSCLE

DERWENT-CLASS: P31

SECONDARY-ACC-NO:
Non-CPI Secondary Accession Numbers: N1996-080212

27/3,K/85 (Item 85 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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009212700 **Image available**
WPI Acc No: 1992-340122/199241
XRPX Acc No: N92-259420
Surgical **suture carrier and** method **for urinary bladder neck** suspension **- has sheath which envelopes needle but is flexible to allow needle to navigate tract**
Patent Assignee: UNIV WAYNE STATE (UYWA-N)
Inventor: RICHARDSON D A
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 5149329	A	19920922	US 90626184	A	19901212	199241	B

Priority Applications (No Type Date): US 90626184 A 19901212
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5149329	A		7	A61B-019/00	

Surgical **suture carrier and** method **for urinary bladder neck** suspension -

...Abstract (Basic): The **suturing** needle assembly, laden with surgical thread, is **inserted** into a patient's **vagina** and guided to an operating site at the superior **wall** of the **vagina** below the urinary bladder neck. At the operating site, the needle tip is thrust through the superior **wall** of the **vagina** and into the retropubic space a sufficient number of times so that the superior **wall** of the **vagina** may be elevated and bound to structures in the retropubic space. As a result, problems...
International Patent Class (Main): **A61B-019/00**

27/3,K/86 (Item 86 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.

008746935
WPI Acc No: 1991-250951/199134
XRPX Acc No: N91-191101
Total female hypospadias urinary incontinence treatment - suturing urinary bladder **back wall** defect **after mobilising vesicular triangle**
Patent Assignee: ZAPORO MED INST (ZPME)
Inventor: SOLOVEV A E
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
SU 1597178	A	19901007	SU 4327842	A	19871113	199134	B

Priority Applications (No Type Date): SU 4327842 A 19871113

1990 PUBLISHED

... **suturing urinary** bladder **back wall** defect **after mobilising vesicular triangle**

...Abstract (Basic): The **method** of **treatment** of urinary incontinence in total female hypospadias involves the formation of the distal part of the urethra from the front **wall** of the **vagina** .

...

...the ureters are sutured with separate silk sutures, and the mucous membrane of the front **wall** of the **vagina** is sutured over the sutures on the neck of the urinary bladder and the newly...

...ADVANTAGE - This **method** of **treatment** of urinary incontinence in total female hypospadias reduces the incidence of relapse. Bul. 37/7
International Patent Class (Additional): **A61B-017/00**

27/3,K/87 (Item 87 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.

008350476
WPI Acc No: 1990-237477/199031
XRPX Acc No: N90-184038
Treatment of cancer of cervix and body of uterus - after amputation with trans-abdominal access, plastic surgery of front and back vaginal walls
Patent Assignee: ONCOLOGY MED RADIOL (ONCO-R)
Inventor: VISHNEVSKA E E
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
SU 1517948	A	19891030	SU 4332256	A	19871123	199031	B

Priority Applications (No Type Date): SU 4332256 A 19871123

... **after amputation with trans-abdominal access, plastic surgery of front and back** vaginal walls

...Abstract (Basic): In the **method** of **treatment** of cancer of the cervix and body of the uterus, after amputation with transabdominal access, plasty of the front and back **walls** of the **vagina** is performed with reinforcement of the vesico- and recto- **vaginal** fascia and fixation of the **vagina** is also performed...

...ADVANTAGE - This **method** of **treatment** of cancer of the cervix and body of the uterus improves the medical and social rehabilitation of patients with total **prolapse** of the **uterus** . Bul.40/30.10.89G
...Title Terms: **VAGINAL** ;
International Patent Class (Additional): **A61B-017/00**

27/3,K/88 (Item 88 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.

008336898 **Image available**
WPI Acc No: 1990-223899/199029
Related WPI Acc No: 1990-360827
XRPX Acc No: N90-173735
Female bladder neck suspension process - **comprises** inserting sutures **through puncture or incision in abdominal area or in** vaginal wall
Patent Assignee: AMERICAN MEDICAL SYSTEMS INC (AMME-N); AMER MED SYST INC (AMME-N)
Inventor: BRUSKEWITZ R C; BURTON J H; MIKULICH M A; SAVILLE W D
Number of Countries: 006 Number of Patents: 007
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 4938760	A	19900703	US 89330390	A	19890329	199029	B
EP 390469	A	19901003	EP 90303203	A	19900326	199040	
CA 2013111	A	19900929				199050	
EP 615725	A1	19940921	EP 90303203	A	19900326	199436	
			EP 94201135	A	19900326		
EP 390469	B1	19950426	EP 90303203	A	19900326	199521	
DE 69018866	E	19950601	DE 618866	A	19900326	199527	
			EP 90303203	A	19900326		
CA 2013111	C	19960116	CA 2013111	A	19900327	199614	

Priority Applications (No Type Date): US 89330390 A 19890329
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 390469	A				
Designated States (Regional): DE FR GB IT					
EP 615725	A1	E	10	A61B-017/04	Related to application EP 90303203
Designated States (Regional): DE FR GB IT					
EP 390469	B1	E	8	A61B-017/04	
Designated States (Regional): DE FR GB IT					
DE 69018866	E			A61B-017/04	Based on patent EP 390469
CA 2013111	C			A61B-017/04	

Female bladder neck suspension process - ...

...**comprises** inserting sutures **through puncture or incision in abdominal area or in** vaginal wall

...Abstract (Basic): The **method** for **suspending** the urethrovesical junction in females comprises **inserting sutures** through a puncture or incision in the suprapubic abdominal area or through a puncture or incision in the **vaginal wall** , suspending the urethrovesical junction with the sutures, and anchoring the sutures with an anchoring element...

...The **anchoring** element is a relatively rigid helix having an **attaching** mechanism to **attach** the **suture** , or a pad adapted to be delivered with a delivery mechanism to the anchoring site, or a flip **anchor** in substantial axial alignment with a **placement** unit and adapted to be flipped from the axial alignment to an angled **position** , or an adjustable tissue **anchor** having a mechanism for adjustably **attaching** the **sutures** . (8pp Dwg.No.6/7)
...Abstract (Equivalent): Apparatus for **positioning** an **anchoring** means (28) in living tissue, comprising **placement** means (30) primarily

defined along a longitudinal axis and adapted to be **placed** in **position** by a surgical needle, characterised by said **anchoring** means being a flip anchor (28) having an axial channel (32) which snugly fits around said placement means in substantially axial alignment with the longitudinal axis of the **placement** means, the flip **anchor** being adapted to rotate from the axial alignment to a **position** in which the channel is angled from said longitudinal axis...

...Title Terms: **VAGINAL** ;

International Patent Class (Main): **A61B-017/04**

27/3,K/89 (Item 89 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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008260715
WPI Acc No: 1990-147716/199019
XRPX Acc No: N90-114465
Female incontinence treatment method - **uses implanted filament to connect** vaginal **sheath and anterior abdominal wall with scar tissue**
Patent Assignee: PETROS P E (PETR-I)
Inventor: PETROS P E
Number of Countries: 031 Number of Patents: 009
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 9003766	A	19900419				199019 B
AU 8944064	A	19900501				199029
EP 437481	A	19910724	EP 89911232	A	19891004	199130
BR 8907704	A	19910730				199135
JP 4500763	W	19920213	JP 89510476	A	19891004	199213
US 5112344	A	19920512	WO 89AU432	A	19891004	199222
			US 91654648	A	19910211	
EP 437481	B1	19950315	EP 89911232	A	19891004	199515
			WO 89AU432	A	19891004	
EP 437481	A4	19910821	EP 89911232	A	19890000	199518
DE 68921762	E	19950420	DE 621762	A	19891004	199521
			EP 89911232	A	19891004	
			WO 89AU432	A	19891004	

Priority Applications (No Type Date): AU 88756 A 19881004; AU 8944064 A 19890000
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 9003766	A				
Designated States (National): AT AU BB BG BR CH DE DK FI GB HU JP KP KR LK LU MC MG MW NL NO RO SD SE SU US					
Designated States (Regional): AT CH DE FR GB IT LU NL OA SE					
EP 437481	A				
Designated States (Regional): AT BE CH DE FR GB IT LI LU NL SE					
JP 4500763	W		5		
US 5112344	A		7	A61B-017/04	Based on patent WO 9003766
EP 437481	B1	E	7	A61B-017/42	Based on patent WO 9003766
Designated States (Regional): AT BE CH DE FR GB IT LI LU NL SE					
DE 68921762	E			A61B-017/42	Based on patent EP 437481
					Based on patent WO 9003766

Female incontinence treatment method - ...
...**uses implanted filament to connect** vaginal **sheath and anterior abdominal wall with scar tissue**

...Abstract (Basic): The instrument is used to treat female incontinence by looping a filamentary element between the **vagina** and reaches abdominis sheath wach side of the urethra, forming scar tissue between the **vaginal wall** and the sheath. (14pp Dwg.No.6/8)
...Abstract (Equivalent): end whereby when in use and in position the curved portion extends from the anterior **vaginal wall** to the anterior surface of the abdomen past the pubis...
...Abstract (Equivalent): The method involves looping a filamentary element (19) between the **wall** of the **vagina** (16) and the rectus abdominis sheath in the anterior wall of the abdomen so that...

...the pubis (17). The method then involves allowing the development of scar tissue between the **vaginal wall** (16) and the rectus abdominis sheath and removing the filamentary element (19). A **surgical** instrument for use with the **method** comprises a **surgical** instrument for the application of a filamentary element (19) into the body for the purpose...

...element (19) and having an enlarged profiled portion (15) at its other end. USE - A **method** of **treating** female incontinence.
...Title Terms: **VAGINAL** ;
International Patent Class (Main): **A61B-017/04** ...

... **A61B-017/42**
International Patent Class (Additional): **A61B-017/06** ...

... **A61B-019/00**

27/3,K/92 **(Item 92 from file: 350)**
DIALOG(R)File 350:Derwent WPIX
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004337467
WPI Acc No: 1985-164345/198527
XRPX Acc No: N85-123774

Damaged urethra rebuilding surgery - with bladder base transposition and urethra formation from the bladder tissues and muscles

Patent Assignee: MOSC MED STOMAT INS (MOME-R)
Inventor: KAN D V; LORAN O B
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
SU 1131500	A	19841230	SU 3645877	A	19830726	198527	B

Priority Applications (No Type Date): SU 3645877 A 19830726
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
SU 1131500	A		4		

...Abstract (Basic): External uretroplasty technique in women, including dissection of the front **vaginal wall** to the mucous urethra, resection of the scar tissues of the front and side wall...
...tissue under the urethra with formation of a distal urethra section from the paravesical and **paravaginal** tissues and restoring the **vaginal** mucous membrane by separate sutures...

...the base of the bladder are exposed by a delta-shape dissection of the front **vaginal wall** up to the paravesical and **paravaginal** space, the position of the urinary bladder base is changed, the proximal urethra section is...

...USE/ADVANTAGE - **Surgical technique** for external uretho sphincter plasty for restoration of the normal urethra function in women. Bul...
International Patent Class (Additional): **A61B-017/00**

27/3,K/93 (Item 93 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.

004030327
WPI Acc No: 1984-175869/198428
XRPX Acc No: N84-131199
Surgical technique **for a drop of** uterus **and** vaginal walls - **with reliable fixing of remaining uterine neck stump by two strips cut from the aponeurosis**
Patent Assignee: MOSC MIDWIFERY RES (MOMI-R)
Inventor: KRASNOPOLS V I; MAREEVA L S
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
SU 1052226	A	19831107	SU 3365702	A	19811230	198428	B

Priority Applications (No Type Date): SU 3365702 A 19811230
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
SU 1052226	A		4		

Surgical technique **for a drop of** uterus **and** vaginal walls -

...Abstract (Basic): Surgical treatment of a dropped **uterus** and **vaginal walls** by making a crosswise upper skin and subcutaneous tissue incision in the front abdominal wall...

...uterus or of the neck stump, if the uterus body is removed, or of the **vaginal walls** , if the **uterus** body and neck are removed, and to reduce the number of relapses, two strips, 1...

...in the iliac regions, then leading the strips through the apertures in the broad uterine **ligaments** at the base of the **pelvic** region between the anterior and posterior broad ligament sheets to the neck of the uterus...

...iliac regions, are sutured to the sacro-uterine ligaments and to the cupola of the **vagina** . Bul.41/7.11.83...
...Title Terms: **VAGINAL** ;
International Patent Class (Additional): **A61B-017/42**

27/3,K/95 (Item 95 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.

002176045
WPI Acc No: 1979-K5995B/197945
Ligature carrier for suspending-type operation - has brace for guiding retractable needle with two aligned striated flat handles
Patent Assignee: PEREYRA A J (PERE-I)
Inventor: PEREYRA A J
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 4172458	A	19791030				197945	B

Priority Applications (No Type Date): US 77848924 A 19771107

...Abstract (Basic): The ligature carrier is for use in a suspensory-type **operation** known as the Revised Pereyra **Procedure** , which **corrects prolapse** of the **bladder** neck in women. The ligature carrier comprises an angulated needle with two aligned striated flat...

...fascia is so penetrated, the carrier suitably redirected, and the needle extended out through the **vaginal** opening by sliding the needle handle in the brace. Sutures are then threaded through the...
International Patent Class (Additional): **A61B-017/06**

```
Set     Items   Description
S1     251863   VAGIN? OR PARAVAGIN?
S2    3742700   (METHOD? OR SYSTEM? OR TECHNIQ? OR PROCESS? OR PROCEDUR?)(-
            5N)(SURG? OR CHIRURG? OR MEDIC? OR OPERAT? OR REPAIR? OR REPA-
            RAT? OR TREAT? OR REBUIL? OR FIX OR FIXE? OR FIXING OR OVERHA-
            UL? OR RECONSTRUCT?)
S3     435967   (METHOD? OR SYSTEM? OR TECHNIQ? OR PROCESS? OR PROCEDUR?)(-
            5N)(SUSPEN? OR MEND? OR RECTIF? OR REMED? OR CORRECT? OR CURE?
             OR CURING OR RESTOR?)
S4      72819   (METHOD? OR SYSTEM? OR TECHNIQ? OR PROCESS? OR PROCEDUR?)(-
            5N)(RECONSTIT? OR REHABIL? OR VAGINOPLAST? OR PARAVAGINOPLAST-
            ?)
S5       2554   (INFERIO? OR SUPERIO?)()LATERAL? OR LATERAL?()SULC? OR VAG-
            IN?()SULC? OR PARAVAGIN?()SULC? OR LATERAL?()(VAGIN? OR PELVI-
            ?)
S6      49603   (PELVI? OR UTER? OR VAGIN? OR PARAVAGIN? OR ENDOPELV?)(3N)-
            (FLOOR? OR SIDEWALL? OR SIDE()WALL? OR WALL? OR VAULT? OR EPI-
            THEL?) OR LEVATOR()(ANI OR ANIS)
S7       4193   (VAGIN? OR PARAVAGIN? OR SACROSPIN? OR PELVI? OR UTEROSACR?
             OR SACRA? OR UTER? OR ENDOPELV?)(5N)(LIGAMENT? OR TENDON? OR
            TENDIN? OR SINEW?)
S8       4081   CYSTOCEL? OR RECTOCEL? OR VESICOCEL? OR CYSTOURETHROCEL? OR
             URETHROCEL?
S9      68875   (EPITHEL? OR EPIDERM? OR SKIN? OR TISSUE? OR MUSCL? OR FAS-
            CIA? OR VAGIN? OR PARAVAGIN? OR BLADDER? OR UTER? OR SHEATH? -
            OR WOMB?)(5N)(LAX OR LAXITY OR TORN? OR TEAR? OR STRETCH? OR -
            RIPPED OR LACERAT? OR HERNIA? OR DISTEN? OR FISSUR? OR...
S10    305190   (EPITHEL? OR EPIDERM? OR SKIN? OR TISSUE? OR MUSCL? OR FAS-
            CIA? OR VAGIN? OR PARAVAGIN? OR BLADDER? OR UTER? OR SHEATH? -
            OR WOMB?)(5N)(SEVER? OR OVEREXTEN? OR PROLAPS? OR COLLAPS? OR
            DEFECT? OR BULG? OR PROTRUS? OR PROTRUD? OR MALPOSITI...
S11   9146761   PLACE? OR PLACING OR LOCAT? OR SITUAT? OR EMPLAC? OR IMPLA-
            C? OR EMPLANT? OR IMPLANT? OR ENGRAFT? OR GRAFT? OR POSITION?
            OR AFFIX?
S12   6747415   CONNECT? OR ATTACH? OR FASTEN? OR SECURE? OR SECURING? OR -
            INSERT? OR LOCK? OR APPROXIMAT? OR IMMOBIL?
S13    973732   FIXAT?(3N)(DEVIC? OR APPARAT? OR TOOL? OR IMPLEMENT? OR IN-
            STRUMENT? OR EQUIPM? OR UTENSIL? OR APPLIANC?) OR ANCHOR? OR -
            SCREW? OR SUTUR? OR CLEAT? OR CLIP? OR CLAMP? OR BARB?
S14    374948   STAPL? OR TACK? OR BRAD? OR RIVET? OR FASTENER? OR TOGGLE?
            OR CONNECTOR? OR CONNECTER?
S15   2131622   TEMPLAT? OR STENCIL? OR EXEMPLAR? OR PROTOTYP? OR GUIDE? OR
             ALIGN?
S16     25957   S1 AND S2:S4
S17      3715   S16 AND S5:S7
S18      1865   S17 AND S8:S10
S19       188   S18 AND S11:S12 AND S13:S14
S20         0   S19 AND S15
S21        37   S18 AND S15
S22      1865   S18:S19
S23       432   S18 AND S13:S14
S24       465   S19:S21 OR S23
S25       211   S24 AND S1(5N)S2:S4
S26       151   S25 AND S5:S7(10N)S8:S10
S27       148   S25 AND S11:S14(10N)S5:S10
S28       338   S19 OR S21 OR S25:S27
S29       212   S28 AND PY<2001
S30       141   RD (unique items)
? show files
File   2:INSPEC 1969-2004/Sep W3
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File   5:Biosis Previews(R) 1969-2004/Sep W4
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         (c) 2004 FIZ TECHNIK
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         (c) 2004 The HW Wilson Co.
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         (c) 2004 INIST/CNRS
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         (c) format only 2004 The Dialog Corp.
File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec
         (c) 1998 Inst for Sci Info
File 481:DELPHES Eur Bus 95-2004/Sep W3
         (c) 2004 ACFCI & Chambre CommInd Paris
File 583:Gale Group Globalbase(TM) 1986-2002/Dec 13
         (c) 2002 The Gale Group
?
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30/3,K/7 **(Item 7 from file: 5)**
DIALOG(R)File 5:Biosis Previews(R)
(c) 2004 BIOSIS. All rts. reserv.

0011817776 BIOSIS NO.: 199900077436
Paravaginal **repair of** lateral vaginal wall defects **by fixation to the ischial periosteum and obturator membrane**
AUTHOR: Scotti Richard J (Reprint); Garely Alan D; Greston Wilma M; Flora Robert F; Olson Todd R
AUTHOR ADDRESS: Dep. Obstet. Gynecol. Women's Health, Montefiore Med. Cent., Div. Urogynecol./Reconstructive Pelvic Surg., Albert Einstein Coll. Med., 111 E. 210th St., Bronx, NY 10467, USA**USA
JOURNAL: American Journal of Obstetrics and Gynecology 179 (6 PART 1): p 1436-1444 Dec., 1998 **1998**
MEDIUM: print
ISSN: 0002-9378
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

Paravaginal **repair of** lateral vaginal wall defects **by fixation to the ischial periosteum and obturator membrane**
1998

...ABSTRACT: aim of the study was to evaluate the anatomic basis, efficacy, and safety of a **technique** for **correcting** lateral **wall vaginal defects** . STUDY DESIGN: Phase I was cadaveric dissection carried out to ascertain the strength and **position** of structures likely to support **lateral vaginal wall defects** . The ischial periosteum just anterior to the ischial spine was found to be strong tissue, relatively free of nerves and vessels. In phase II, **paravaginal defects** were repaired by **placing sutures** through the arcus tendineus and underlying obturator fascia, obturator membrane, and ischial periosteum. Other defects...

...history, cough stress test, spontaneous uroflowmetry, postvoid residual urine determination, urethral axis determination, site-specific **pelvic floor** defect evaluation, and multichannel urodynamic studies. After the operation patients underwent evaluations at 3 months...

...1) The ischial periosteum and obturator membrane are consistently strong reattachment sites. (2) Repair of **paravaginal defects** with these **tissues** is effective and safe. (3) Urodynamic parameters were unchanged after the operation except for measures...

...P < .001). (4) Performing other pelvic procedures did not negatively alter the success rates of **paravaginal** repair. (5) The urethral axis was favorably altered after the operation (P < .01).
DESCRIPTORS:
...ORGANISMS: PARTS ETC: **vagina** --
DISEASES: **lateral vaginal wall defect** --
METHODS & EQUIPMENT: **lateral vaginal wall defect** reparation...

...anatomic basis, therapeutic method, urodynamic effects, surgical **method** , efficacy, reattachment sites, ischial fixation, obturator fixation, safety...

... **paravaginal** reparation...

... **surgical method** , therapeutic **method**

30/3,K/11 (Item 11 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)
(c) 2004 BIOSIS. All rts. reserv.

0011646208 BIOSIS NO.: 199800440455
Colposacropexy with Gore-tex mesh in marked vaginal **and** uterovaginal prolapse
AUTHOR: Costantini E (Reprint); Lombi R; Micheli C; Parziani S; Porena M
AUTHOR ADDRESS: Urol. Dep., Policlinico Monteluce, Via Brunamonti, I-06100 Perugia, Italy**Italy
JOURNAL: European Urology 34 (2): p111-117 Aug., 1998 **1998**
MEDIUM: print
ISSN: 0302-2838
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

Colposacropexy with Gore-tex mesh in marked vaginal **and** uterovaginal prolapse
1998

...ABSTRACT: focusses on abdominal sacral colpopexy which appears to provide the most anatomically correct restoration and **secure** and durable support for advanced **vaginal** or **uterovaginal prolapse** . 21 patients underwent colposacropexy or hysterocolposacropexy using Gore-tex mesh. All patients referred symptoms of **vaginal** heaviness and urinary dysfunctions. Five presented with complete **vaginal vault prolapse** , 7 with third-degree anterior colpoceles and 9 with **uterovaginal prolapse** . Hydronephrosis was present in 4. Five patients had previously undergone total hysterectomy, and underwent only...

...underwent standard total abdominal hysterectomy before sacropexy; 7 underwent hysterocolposacropexy, preserving the uterus. In colposacropexy **anchorage** was designed to provide a large **vagina** -mesh contact area thus reducing the risk of suspension failure. Hysterocolposacropexy was performed using 3 stitches to **anchor** the synthetic mesh to the **vagina** and the uterine isthmus. Postoperative follow-up times range from 12 to 68 months. Overall...

...persisted in 3, but protection was not required. Slight dysuria persisted in 2. First-degree **cystoceles** recurred only in 3 patients who underwent hysterocolposacropexy. Sacropexy with synthetic mesh seems to be the most valid support of **uterovaginal prolapse** as the physiological **vaginal** axis is restored and **vaginal** function is preserved. Our success rate and the overall satisfaction expressed by 19/21 patients...
DESCRIPTORS:
DISEASES: **uterovaginal prolapse** --...

... **vaginal prolapse** --
...METHODS & EQUIPMENT: **surgical method** , therapeutic **method** ; ...

... **surgical method** , therapeutic **method**

30/3,K/14 (Item 14 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)
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0010693006 BIOSIS NO.: 199799327066
Laparoscopic colposuspension for total vaginal prolapse
AUTHOR: Ostrzenski A
AUTHOR ADDRESS: Div. Operative Gynecol. Endoscopy Laser Surg., Dep. Obstet. Gynecol., Howard University Coll. Med., Washington, DC, USA**USA
JOURNAL: International Journal of Gynecology and Obstetrics 55 (2): p 147-152 1996 **1996**
ISSN: 0020-7292
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

Laparoscopic colposuspension for total vaginal prolapse
1996

ABSTRACT: Objective: To present and evaluate a new technique of modified translaparoscopic colpopexy for total **vaginal prolapse** following hysterectomy as an alternative surgical mode of therapy to abdominal **sacral** suspension or transvaginal sacrospinous **ligament vaginal vault** suspension. A modest modification (Group II) of this author's initial **surgical technique** (Group I) and postoperative observations from 1989 to 1996 are presented. Methods: Twenty-seven patients with iatrogenic total **vaginal prolapse** subsequent to hysterectomy enrolled in this clinical study, which was conducted from September 1989 through February 1996. Posteriorly, **vaginal** apex was suspended to the deep layer of the **uterosacral ligaments** . The latero-posteriors **vaginal** cuff was suspended to the cardinal **ligaments** . Anteriorly, the **vaginal vault** was approximated to the pubocervical fascia. These procedures were performed in both groups retroperitoneally. Additionally...

...patients had good outcome of the operation. However, patient number 16 had a recurrent total **vaginal vault prolapse** within 6 months following the initial laparoscopic colpopexy. Preceding an initial laparoscopic colpopexy, **sacrospinous ligament** suspension was performed as one of multiple corrective surgeries. This patient was subjected to the modified laparoscopic colpopexy and has been observed for over three years. The **vaginal vault** remains well suspended in this particular case as well as in all remaining patients in...

...retroperitoneal-retropubic colpopexy appeared to be a superior technique and very promising, and offers: (a) **vaginal** cuff suspension by using natural neighboring genital pelvic structures, (b) reconstruction of pelvic gross/functional anatomy, placement of the **vagina** adequately in midline position, and **alignment** of the **vagina** parallel to the rectum, and reconstitution of proper relationship between the newly suspended **vagina** and pelvic viscera. (2) It is a safe operation, simple to learn, and easy to...
DESCRIPTORS:
MISCELLANEOUS TERMS: ... **SURGICAL METHOD** ; ...

...TOTAL **VAGINAL PROLAPSE**

30/3,K/15 (Item 15 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)
(c) 2004 BIOSIS. All rts. reserv.

0009947060 BIOSIS NO.: 199598414893
Surgical treatment of vaginal prolapse **following hysterectomy**
AUTHOR: Dellas A (Reprint); Almendral A C
AUTHOR ADDRESS: Univ.-Frauenklin., Schanzenstr. 46, CH-4031 Basel, Switzerland**Switzerland
JOURNAL: Geburtshilfe und Frauenheilkunde 55 (5): p244-246 1995 **1995**
ISSN: 0016-5751
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: German

Surgical treatment of vaginal prolapse **following hysterectomy**
1995

ABSTRACT: Forty-five women were treated with a **sacrospinous ligament** fixation of the **vaginal** apex between 1979 and 1993. The patients had a complete **vaginal prolapse** following abdominal or **vaginal** hysterectomy or in three cases a combined **uterine** and **vaginal prolapse** . The **sacrospinous ligament** fixation was carried out as described by Amreich, Sederl and Richter. The fixation of the **vagina** was successful performed in 43 women. These results were obtained using absorbable **suture** material. A sciatic nerve damage was observed in two patients for a short time with spontaneous recovery, coincident with **suture** absorption and nerve regeneration. We consider and recommend fixation of the **vaginal** apex to the **sacrospinous ligament** as the **technique** preferred for the **operative treatment** of a **vaginal prolapse** and for the rare cases of **uterine prolapse** , which cannot be corrected otherwise.
DESCRIPTORS:
MISCELLANEOUS TERMS: ... **SACROSPINOUS LIGAMENT** FIXATION...

... **VAGINA**

30/3,K/17 (Item 17 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)
(c) 2004 BIOSIS. All rts. reserv.

0006716861 BIOSIS NO.: 198988031976
AN ANATOMIC EVALUATION OF THE SACROSPINOUS LIGAMENT **COLPOPEXY**
AUTHOR: KETTEL L M (Reprint); HEBERTSON R M
AUTHOR ADDRESS: DEP OBSTET GYNECOL, UNIV UTAH SCH MED, SALT LAKE CITY, UTAH, USA**USA
JOURNAL: Surgery Gynecology and Obstetrics 168 (4): p318-322 **1989**
ISSN: 0039-6087
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

AN ANATOMIC EVALUATION OF THE SACROSPINOUS LIGAMENT **COLPOPEXY**
1989

ABSTRACT: A series of 31 **sacrospinous ligament** suspensions performed for correction of genital prolapse between 1980 and 1986 is reviewed. The success rate was 81 per cent. A cadaver dissection of the **sacrospinous ligament** was also performed with the same approach used at operation. This was done to understand...

...covers the coccygeus muscle, and care should be taken not to confuse this with the **sacrospinous ligament** . The possibility of injury to the nearby vessels and nerves can be avoided with the careful **placement** of **suture** through the **sacrospinous ligament** and two fingerbreadths medial to its **insertion** on the ischial spine. At the conclusion of the suspension, the **vaginal** apex should be intimately **attached** to the coccygeus muscle and **sacrospinous ligament** complex. The use of absorbable **suture** has been recommended by some, but the success of the procedure may be increased by using permanent **suture** . If anatomic relationships of the nearby structures are remembered, **sacrospinous ligament** suspension can be a safe, effective and relatively simple **procedure** for the correction of **severe prolapse** of the **vaginal vault** .
DESCRIPTORS: HUMAN GENITAL **PROLA**PSE VAGINAL EVERSION

30/3,K/19 (Item 19 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)
(c) 2004 BIOSIS. All rts. reserv.

0004763480 BIOSIS NO.: 198580072375
PROLAPSE **OF THE** VAGINA **AFTER HYSTERECTOMY**
AUTHOR: KAUPPILA O (Reprint); PUNNONEN R; TEISALA K
AUTHOR ADDRESS: DEP OBSTET GYNECOL, CENTRAL HOSP TAMPERE, SF-33520 TAMPERE 52, FINL**FINLAND
JOURNAL: Surgery Gynecology and Obstetrics 161 (1): p9-11 **1985**
ISSN: 0039-6087
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

PROLAPSE **OF THE** VAGINA **AFTER HYSTERECTOMY**
1985

ABSTRACT: Patients (22) were operated upon for posthysterectomy **vaginal prolapse** . The original operation was abdominal hysterectomy in 11 patients and **vaginal** hysterectomy in an additional 11 patients. All of the corrective operations were performed abdominally. **Vaginal** sacropexy was performed on 8 patients with a modified method using a fascial strip taken from the rectum sheath. Dexon **sutures** were used in the **attachment** of the strip to the apex of the **vagina** and the periosteum of the sacrum. The fascial strip was peritonealized. A high resection of the enterocele sac was performed. Excellent permanent **vaginal** support was achieved in all of these patients. Other **methods** of **operation** used included direct fixation of the **vaginal** apex to the presacral fascia, fixation of the **vagina** with round **ligaments** and the method according to Williams and Richardson. More than 1/2 of the patients...
DESCRIPTORS: HUMAN ABDOMINAL HYSTERECTOMY **VAGINAL** HYSTERECTOMY **VAGINAL** SACROPEXY ENTEROCELE SAC RESECTION **VAGINAL** SUPPORT

30/3,K/30 (Item 11 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
(c) 2004 Inst for Sci Info. All rts. reserv.

04766003 Genuine Article#: UF873 No. References: 14
Title: NO INCISION TRANSVAGINAL RETROPUBIC URETHROPEXY FOR THE TREATMENT OF FEMALE STRESS URINARY-INCONTINENCE
Author(s): GUNGOR M; VARDAR G; BAHCECI M; TURAN H; SEREL A; KURTAY G
Corporate Source: KONUTKENT 2,HAYRABOLU CAD A8 BLOK 46/CAYYOLU 06530/ANKARA/TURKEY/; ANKARA UNIV,DEPT OBSTET & GYNECOL/ANKARA//TURKEY/; UNIV KOCAELI,DEPT OBSTET & GYNECOL/IZMIT//TURKEY/; UNIV ISPARTA,DEPT UROL/ISPARTA//TURKEY/; ZEKAI TAHIR BURAK WOMENS HSOP/ANKARA//TURKEY/
Journal: JOURNAL OF GYNECOLOGIC SURGERY, **1996** , V12, N1 (SPR), P1-5
ISSN: 1042-4067
Language: ENGLISH Document Type: ARTICLE (Abstract Available)

, **1996**
...Abstract: min, and the average hospital stay was 2.4 days. The main intraoperative complication was **suture** in the bladder in 10 (22.2%) patients, and the main postoperative complication was urinary...
Research Fronts: 94-0120 004 (RECURRENT STRESS URINARY-INCONTINENCE; **VAGINAL VAULT PROLAPSE** ; MODIFIED NEEDLE **SUSPENSION PROCEDURE** ; ELDERLY WOMEN; ABDOMINAL COLPOSUSPENSION)

30/3,K/34 (Item 3 from file: 73)
DIALOG(R)File 73:EMBASE
(c) 2004 Elsevier Science B.V. All rts. reserv.

10925948 EMBASE No: 1998323415
A safe and easy sacrospinous ligament **fixation**
Koizumi M.; Sagae S.; Baba T.; Yamanaka I.; Yamasita S.; Suzuki T.; Noda M.; Ito E.; Kudo R.
Dr. M. Koizumi, Dept. of Gynecology and Obstetrics, Sapporo Medical University, School of Medicine, South 1 West 16 Chuo-Ku, Sapporo 060 Japan
Journal of Gynecologic Techniques (J. GYNECOL. TECH.) (United States) 1998, 4/2 (43-45)
CODEN: JGTEF ISSN: 1069-2673
DOCUMENT TYPE: Journal; Article
LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH
NUMBER OF REFERENCES: 5

A safe and easy sacrospinous ligament **fixation**

...the increase in the aged population. This article describes transvaginal operation for genital prolapse and **sacrospinous** ligament fixation for marked **uterovaginal**, **prolapse** . The technical difficulty of the operation has led to the adoption of several useful **instruments** for **sacrospinous ligament fixation** . Methods: A modification of the **sacrospinous ligament** fixation is performed, concentrating on two points. First, the Endo Stitch (Autosuture Co, U.S. Surgical Corp, Norwalk, CT), a laparoscopic **suturing** instrument, is used, and visualization may be improved by a **position** that **secures** the tissue bite and **sutures** . Results: The outcome of three patients undergoing a modified technique of **sacrospinous ligament** fixation is described. No **operative** complications occurred with this **technique** . Conclusion: With the use of this new method, the **sacrospinous ligament** fixation is safe and technically straightforward.
MEDICAL DESCRIPTORS:
* **ligament** surgery; * **uterus prolapse** ; * **vagina prolapse** **surgical** approach; **surgical technique** ; **suturing method** ; patient **positioning** ; **surgical** instrument; article; priority journal
1998

30/3,K/42 (Item 11 from file: 73)
DIALOG(R)File 73:EMBASE
(c) 2004 Elsevier Science B.V. All rts. reserv.

07864424 EMBASE No: 1999344804
Abdominal sacral colpopexy with Prolene mesh
Schettini M.; Fortunato P.; Gallucci M.
Dr. M. Schettini, Via Pompeo Trogo 42, 00136 Roma Italy
International Urogynecology Journal and Pelvic Floor Dysfunction (INT. UROGYNECOL. J. PELVIC FLOOR DYSFUNCT.) (United Kingdom) 1999, 10/5 (295-299)
CODEN: IUFDF ISSN: 0937-3462
DOCUMENT TYPE: Journal; Article
LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH
NUMBER OF REFERENCES: 8

The objective was to evaluate abdominal colposacropexy using Prolene mesh to correct total **vaginal vault prolapse** or total procidentia. Between 1994 and 1997 we performed colposacropexy on 15 patients for simple **vaginal vault prolapse** (in 7 cases after hysterectomy) and for total **uterine prolapse** in 8 cases. In these cases a simple abdominal hysterectomy was performed. We simultaneously performed...

...technique for urinary stress incontinence in 6 cases. The colposacropexy technique consisted of isolating the **vaginal** apex and creating a retroperitoneal tunnel from the **vagina** to the sacral promontory. Between the **vaginal** cul de sac and the sacrum, a mesh of Prolene is **inserted** and fixed with non-absorbable **sutures** . The Foley catheter was removed after 4-12 days (average 5). Average follow-up was...

...We believe that it is very important to restore the normal anatomic support of the **vaginal vault** after **prolapse** . This strong support is assured by fixing the **vaginal** apex to the periosteum of the sacrum using Prolene mesh. Colposacropexy with Prolene mesh is a safe and effective **technique** for the **surgical** therapy of **vaginal vault prolapse** ..
MEDICAL DESCRIPTORS:
surgical equipment; **vagina prolapse** --surgery--su; **uterus prolapse** --**surgery** --su; abdominal hysterectomy; colposuspension; **surgical technique** ; stress incontinence-- **surgery** --su; sacrum; **suture** ; balloon catheter; follow up; sexual behavior; wound infection--complication--co; prosthesis failure--complication--co; human...
1999

30/3,K/43 (Item 12 from file: 73)
DIALOG(R)File 73:EMBASE
(c) 2004 Elsevier Science B.V. All rts. reserv.

07800860 EMBASE No: 1999283205
Transvaginal repair of paravaginal defects **using the capio** suturing **device: A preliminary experience**
Nguyen J.K.; Bhatia N.N.
Dr. J.K. Nguyen, Department of Obstetrics/Gynecology, Harbor-UCLA Medical Center, Box 489, 1000 W. Carson St., Torrance, CA 90509 United States
Journal of Gynecologic Techniques (J. GYNECOL. TECH.) (United States) 1999, 5/2 (51-54)
CODEN: JGTEF ISSN: 1069-2673
DOCUMENT TYPE: Journal; Article
LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH
NUMBER OF REFERENCES: 13

Transvaginal repair of paravaginal defects **using the capio** suturing **device: A preliminary experience**

Objective: To evaluate the efficacy of the Capio **suturing** device (Microvasive Endoscopy, Natick, MA) in the transvaginal repair of paravaginal defects. Methods: Ten patients...

...of the anterior vagina. Central anterior vaginal defects were repaired with 0 polyglycolic acid mattress **sutures** . The **vaginal epithelium** was closed with 2- 0 polyglycolic acid **sutures** . Results: **Placement** of each **suture** through the arcuate **tendineus** fasciae **pelvis** could be accomplished in less than 1 minute. The average estimated blood loss and **operative** time for all **procedures** were 300 mL and 2.75 hours, respectively. The average number of days hospitalized was 2 days. All patients had an intact suspension with direct apposition of the lateral anterior **vaginal wall** to the arcus **tendineus** fasciae **pelvis** on postoperative examination. The mean follow-up time was 12 months. There were no transfusions, complications, or patient deaths. Conclusion: The Capio **suturing** device can be safely and effectively used to perform transvaginal repair of **paravaginal defects** .
MEDICAL DESCRIPTORS:
* **surgical** approach; * **vagina reconstruction** ; * **suturing method** follow up; endoscopy; **cystocele** ; urine incontinence--diagnosis--di; urine incontinence--surgery--su; stress incontinence--diagnosis--di; stress incontinence--surgery...
1999

30/3,K/46 (Item 15 from file: 73)
DIALOG(R)File 73:EMBASE
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07552018 EMBASE No: 1999027020
Colposuspension: Burch technique in extraperitoneal laparoscopy
D'Elia A.; Grossi F.S.; Larocca L.; Barnaba D.; Sallustio G.; Raguso G.
Dr. A. D'Elia, Divisione di Urologia, Ospedale Civile, Piazza S. Francesco da Paola 1, 74015 Martina Franca (TA) Italy
Acta Urologica Italica (ACTA UROL. ITAL.) (Italy) 1998, 12/5 (255-258)
CODEN: AUITE ISSN: 0394-2511
DOCUMENT TYPE: Journal; Article
LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH
NUMBER OF REFERENCES: 23

Of the different **surgical techniques** for **treating** of stress urinary incontinence (SUI), laparoscopic extraperitoneal colposospension has recently gained wide approval. After a...

...trocar is then introduced for the video system and inflation starts. Two more trocar are **inserted** under direct vision in the Retzius space and, after dissection of the Cooper **ligaments** and of the **vaginal** fornix, 2 strips of mersilene are introduced bilaterally and adequate suspension is obtained by fixing the mesh and with finger control of the tension through the **vagina** , by means of endoscopic **staplers** . We treated 35 pts with type I-II SUI, with modest **cystocele** , no pelvic structure abnormality. In 5 cases, scars of preceding hysterectomy did not complicate access...
MEDICAL DESCRIPTORS:
surgical technique ; **surgical** anatomy; wound closure; hysterectomy; laparoscopy; human; female; clinical article; human tissue; human cell; adult; article
1998

30/3,K/47 **(Item 16 from file: 73)**
DIALOG(R)File 73:EMBASE
(c) 2004 Elsevier Science B.V. All rts. reserv.

07538776 EMBASE No: 1999021850
The risk of cystocele **after** sacrospinous ligament **fixation**
Smilen S.W.; Saini J.; Wallach S.J.; Porges R.F.; Varner R.E.
Dr. S.W. Smilen, Dept. of Obstetrics and Gynecology, New York University Medical Center, 530 First Ave, New York, NY 10016 United States
American Journal of Obstetrics and Gynecology (AM. J. OBSTET. GYNECOL.) (United States) 1998, 179/6 I (1465-1472)
CODEN: AJOGA ISSN: 0002-9378
DOCUMENT TYPE: Journal; Conference Paper
LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH
NUMBER OF REFERENCES: 25

The risk of cystocele **after** sacrospinous ligament **fixation**

OBJECTIVE: The aim of this study was to determine whether **sacrospinous ligament** fixation independently increases the risk of anterior **vaginal wall defect** . STUDY DESIGN: A retrospective cohort study was conducted on patients undergoing pelvic reconstructive surgical operations...

...Two groups were examined and divided into subgroups to evaluate the effects of exposure to **sacrospinous ligament** fixation: patients with anterior wall defects undergoing standard anterior colporrhaphy with (group 1A) or without (group 1B) concomitant **sacrospinous ligament** fixation, and patients without anterior **wall** defects undergoing other **pelvic reconstructive procedures** (but not anterior colporrhaphy) with (group 2A) or without (group 2B) **sacrospinous ligament** fixation. Recurrence rates were calculated for each group according to evidence of any degree of ...

...28 in group 2B (17.8% vs 17.9%, P > .05) had subsequent anterior wall **defects** . CONCLUSION: The occurrence of anterior **vaginal wall defects** was not found to be altered by the performance of **sacrospinous ligament** fixation. These findings may be attributable to **surgical technique** emphasizing maintenance of anterior **vaginal wall** length during **sacrospinous ligament** fixation.
DRUG DESCRIPTORS:
suture material
MEDICAL DESCRIPTORS:
* **cystocele** --complication--co; *surgical approach; *pelvis surgery postoperative complication; data base; treatment outcome; data analysis; demography; disease classification; **surgical technique** ; follow up; statistical analysis; hysterectomy; recurrence risk; cohort analysis; risk factor; human; female; major clinical...
1998

30/3,K/48 (Item 17 from file: 73)
DIALOG(R)File 73:EMBASE
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07383095 EMBASE No: 1998296287
Transvaginal sacrospinous colpopexy for posthysterectomy vault prolapse
Hewson A.D.
Dr. A.D. Hewson, 48 Denison Street, Hamilton, NSW 2303 Australia
Australian and New Zealand Journal of Obstetrics and Gynaecology (AUST. NEW ZEALAND J. OBSTET. GYNAECOL.) (Australia) 1998, 38/3 (318-324)
CODEN: AZOGB ISSN: 0004-8666
DOCUMENT TYPE: Journal; Article
LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH
NUMBER OF REFERENCES: 16

...8 months and 5 years after surgery. There was an initial overall satisfaction rate of **approximately** 90% and this was maintained at 80% even beyond 4 years. Those initially complaining of...

...symptom in almost 90% of cases. Those with a drag or ache were cured in **approximately** 80% of cases. There was greatly improved bowel function in **approximately** 60% of patients and in **approximately** 60% there was cure of stress incontinence with additional buttressing **sutures** . Frequency and/or urgency was relieved in over 50% of the group and there was more comfortable intercourse in **approximately** 35% of those in whom this was a problem initially. As in previous series, subsequent prolapse is more likely to be in the anterior **vaginal wall** and there was an **approximately** 5% risk of this occurring over this period of follow-up. The variation in technique in this series in which nonabsorbable Ethibond **sutures** were used to **secure** the **vaginal vault** to the **sacrospinous ligament** , appears to provide better long-term vault support than previous reports in the literature, without...

...longer term. This series therefore confirms that the operation produces long-term support of the **vaginal vault** with preservation of a functional **vagina** , and has a satisfactory success rate in the relief of bladder and bowel symptoms associated...
MEDICAL DESCRIPTORS:
* **vagina** reconstruction; *hysterectomy; * **vagina prolapse** --complication --co; * **vagina prolapse** --surgery--su
...surgery--su; follow up; patient satisfaction; intestine function; symptom; stress incontinence--complication--co; sexual intercourse; **suture** ; recurrent disease; **surgical technique** ; ligament; morbidity; patient counseling; **treatment** outcome; human; female; major clinical study; aged; adult; article; priority journal
1998

30/3,K/52 (Item 21 from file: 73)
DIALOG(R)File 73:EMBASE
(c) 2004 Elsevier Science B.V. All rts. reserv.

07204409 EMBASE No: 1998102198
Cystocele - **A radical cure by** suturing lateral sulci **of the** vagina **to the white line of pelvic fascia**
White G.R.
International Urogynecology Journal and Pelvic Floor Dysfunction (INT. UROGYNECOL. J. PELVIC FLOOR DYSFUNCT.) (United Kingdom) 1997, 8/5 (288-292)
CODEN: IUFDF ISSN: 0937-3462
DOCUMENT TYPE: Journal; Note
LANGUAGE: ENGLISH
NUMBER OF REFERENCES: 0

Cystocele - **A radical cure by** suturing lateral sulci **of the** vagina **to the white line of pelvic fascia**
MEDICAL DESCRIPTORS:
* **cystocele** --surgery--su
surgical technique ; **suture** ; pelvis; **vagina** ; fascia; human; female; note; priority journal
1997

30/3,K/55 (Item 24 from file: 73)
DIALOG(R)File 73:EMBASE
(c) 2004 Elsevier Science B.V. All rts. reserv.

07146485 EMBASE No: 1998035758
Feasibility of transvaginal bilateral fixation to the sacrospinous ligament **suspension with a** stapler : **Prospective study of 34 first cases**
FAISABILITE DE LA SACROCOLPOPEXIE **VAGINALE** BILATERALE A L'AGRAFEUSE. ETUDE PROSPECTIVE DES 34 PREMIERS CAS
Febbraro W.; Beucher G.; Von Theobald P.; Hamel P.; Barjot P.; Heisert M.; Levy G.
W. Febbraro, Clinique de Gynecologie-Obstetrique, Reproduction Humaine, CHU, F-14033 Caen Cedex France
Journal de Gynecologie Obstetrique et Biologie de la Reproduction (J. GYNECOL. OBSTET. BIOL. REPROD.) (France) 1997, 26/8 (815-821)
CODEN: JGOBA ISSN: 0368-2315
DOCUMENT TYPE: Journal; Article
LANGUAGE: FRENCH SUMMARY LANGUAGE: FRENCH; ENGLISH
NUMBER OF REFERENCES: 30

Feasibility of transvaginal bilateral fixation to the sacrospinous ligament **suspension with a** stapler : **Prospective study of 34 first cases**
FAISABILITE DE LA SACROCOLPOPEXIE **VAGINALE** BILATERALE A L'AGRAFEUSE. ETUDE PROSPECTIVE DES 34 PREMIERS CAS
Objective: Evaluation of the feasibility of bilateral **sacrospinous ligament** suspension with a **stapler** . Morbidity study and short term results. Study design: Prospective study from July 1994 to August 1996. Results: Bilateral **sacrospinous ligament** suspension with a **stapler** was possible in 100% of cases and **surgical technique** is described. Our indications are stage III Bp and stage IV genital prolapses (according to ...

...is performed, in order to prevent enterocele. In 24 patients, the uterus was present. 20 **vaginal** hysterectomies and 4 conservative bilateral **uterine** suspensions were performed. The **sacrospinous ligament** suspension was associated to anterior colporrhaphy (in 74% of patients), repair of **rectocele** (82%), repair of enterocele (26%), posterior colpoperineorrhaphy (79%), bladder neck suspension (71%). No vascular injury...

...2 patients, a small rectal laceration occurred, and in one patient one branch of the **staple** transfixed the rectal mucosa. Removal of the **staple** was easily performed without any post-operative complication. First results after an average 19 months...

...shows a perfect anatomic result in 77% of cases. We noted one recurrence of a **vaginal vault prolapse** ; the patient underwent a second **sacrospinous ligament** fixation with good result. One patient had a stage II Aa **cystocele** post operatively and three patients had a short **vagina** (<6 cm). Patients who were continent before the sacrocolpopexy did not develop further urinary stress-incontinence. Conclusion: Bilateral transvaginal **sacrospinous ligament suspension** with a **stapler** facilitates the **procedure** . No postoperative constipation was noted with this method. Our first results are good. The cost...
MEDICAL DESCRIPTORS:
* **ligament** ; * **vagina reconstruction**
surgical technique ; **stapler** ; **vaginal hysterectomy** ; morbidity; human ; female; clinical article; adult; article
1997

30/3,K/56 **(Item 25 from file: 73)**
DIALOG(R)File 73:EMBASE
(c) 2004 Elsevier Science B.V. All rts. reserv.

07088486 EMBASE No: 1997370350
Apical vault repair, the cornerstone or pelvic vault **reconstruction**
Ross J.W.
Dr. J.W. Ross, Ctr Reprod Med Laparoscopic Surgery, 400 E. Romie Lane, Salinas, CA 93901 United States
International Urogynecology Journal and Pelvic Floor Dysfunction (INT. UROGYNECOL. J. PELVIC FLOOR DYSFUNCT.) (United Kingdom) 1997, 8/3 (146-152)
CODEN: IUFDF ISSN: 0937-3462
DOCUMENT TYPE: Journal; Review
LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH
NUMBER OF REFERENCES: 83

Apical vault repair, the cornerstone or pelvic vault **reconstruction**

Pelvic organ prolapse remains a difficult problem for pelvic **reconstructive surgery** . Before new **surgical procedures** can be developed a good understanding of pelvic anatomy is necessary. It is widely held...

...been developed. Following anatomical principles, the apical vault repair reestablishes the pericervical ring at the **vaginal** apex. The incorporation of pubocervical fascia, **uterosacral** -cardinal **ligament** and the rectovaginal fascia provides a strong **anchor** for the **vaginal** apex. In addition, the repair should help prevent future transverse **cystocele** , **rectocele** , enterocele and apical vault prolapse. Early outcome studies suggest that the apical vault repair should...
MEDICAL DESCRIPTORS:
* **uterus prolapse** --surgery--su; * **uterus prolapse** --etiology--et; * **vagina prolapse** --surgery--su; * **vagina prolapse** --etiology--et **cystocele** --prevention--pc; female; human; hysterectomy; laparoscopic surgery; laparoscopy; pelvis; priority journal; **rectocele** --prevention--pc ; review; **surgical** anatomy; **surgical technique** ; **vagina**
1997

30/3,K/57 (Item 26 from file: 73)
DIALOG(R)File 73:EMBASE
(c) 2004 Elsevier Science B.V. All rts. reserv.

06923475 EMBASE No: 1997207945
Vaginal sacrospinous ligament **fixation with the autosuture endostitch device**
Schlesinger R.E.; Smith M.R.
Dr. R.E. Schlesinger, 100 E. Valencia Mesa Dr., Fullerton, CA 92835
United States
American Journal of Obstetrics and Gynecology (AM. J. OBSTET. GYNECOL.) (United States) 1997, 176/6 (1358-1362)
CODEN: AJOGA ISSN: 0002-9378
DOCUMENT TYPE: Journal; Conference Paper
LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH
NUMBER OF REFERENCES: 11

Vaginal sacrospinous ligament **fixation with the autosuture endostitch device**

OBJECTIVE: The purpose of the study was to evaluate a disposable **suturing** device to facilitate **vaginal sacrospinous ligament** fixation. STUDY DESIGN: Seventeen consecutive patients (mean age 66.3 years) requiring **vaginal sacrospinous ligament** fixation had the procedure performed with the Autosuture Endostitch device with a braided polyester **suture** . Patients were evaluated with respect to operative time, blood loss, complications, hospital stay, and success of the **vaginal** fixation. RESULTS: All patients underwent additional procedures, including anterior colporrhaphy (82.4%), posterior colporrhaphy (100%), **vaginal** hysterectomy (5.9%), enterecole repair (76.4%), and Burch suprapubic urethropexy (5.9%). The time required for the **sacrospinous ligament** plication ranged between 14 and 25 minutes (mean 18.8 +/- 3.0 minutes). Fifteen patients...

...and 18 months (mean 9.8 +/- 4.2 months). Fifteen patients (88.2%) maintained good **vaginal vault** support. Two patients (11.8%) had recurrence at 4 and 6 months, respectively. CONCLUSION: The Autosuture Endostitch device, although designed for endoscopic surgery, is efficacious for the performance of **sacrospinous** ligament fixation of the **vaginal vault** . Decreasing the length of the instrument would make it even more practical.
MEDICAL DESCRIPTORS:
* **suturing method** ; * **vagina prolapse -- surgery** --su
adult; aged; bleeding; clinical article; conference paper; female; hospitalization; human; ligament; priority journal; **surgical** instrument; **surgical technique** ; **vaginal** hysterectomy
1997

30/3,K/59 (Item 28 from file: 73)
DIALOG(R)File 73:EMBASE
(c) 2004 Elsevier Science B.V. All rts. reserv.

06736675 EMBASE No: 1997018145
An in-line suturing **device to simplify sacrospinous** vaginal vault **suspension**
Lind L.R.; Choe J.; Bhatia N.N.
Dr. L.R. Lind, Department of Obstetrics/Gynecology, 1-Cohen Building, North Shore University Hospital, 300 Community Drive, Manhasset, NY 11030 United States
Obstetrics and Gynecology (OBSTET. GYNECOL.) (United States) 1997, 89/1 (129-132)
CODEN: OBGNA ISSN: 0029-7844
PUBLISHER ITEM IDENTIFIER: S0029784496003547
DOCUMENT TYPE: Journal; Article
LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH
NUMBER OF REFERENCES: 3

An in-line suturing **device to simplify sacrospinous** vaginal vault **suspension**

A disposable **suturing** instrument is used in our **surgical method** for sacrospinous vault **suspension** to facilitate **suture placement** and retrieval. The pararectal space is dissected and the **suturing** device is **placed** just medial to the lateral third of the **sacrospinous ligament** -coccygeus muscle complex. Depression of the device's firing button advances a standard needle in a controlled circular path through the **sacrospinous ligament** -coccygeus muscle complex. The needle is retrieved with a straight-needle holder at a consistent **location** , 3 mm from the shaft of the instrument. A second **suture** is **placed** 0.5-1 cm medial to the first **suture** . If the holding strength for either **suture** is considered inadequate, the device is reloaded with the same **suture** and subsequent bites are taken. The procedure is completed using standard **methods** . In ten women **treated** for **vaginal vault** eversion, lateral dissection was completed in less than 10 minutes, and passage of two **sutures** through the **sacrospinous ligament** was accomplished in less than 2 minutes. There were no complications. One patient described mild buttock pain that resolved in 1 week. At 4-6 months' follow-up, **vaginal** examination with maximal straining demonstrated direct apposition of the **vaginal wall** to the **sacrospinous ligament** .
MEDICAL DESCRIPTORS:
*device; *gynecologic **surgery** ; * **suturing method** ; * **vagina prolapse** -- **surgery** --su
article; clinical article; disposable equipment; dissection; female; human; **ligament** ; needle; priority journal; **surgical technique** ; **vagina reconstruction**
1997

30/3,K/63 **(Item 32 from file: 73)**
DIALOG(R)File 73:EMBASE
(c) 2004 Elsevier Science B.V. All rts. reserv.

05802078 EMBASE No: 1994194584
Transvaginal sacrospinous colpopexy for vault **and marked** uterovaginal prolapse
Carey M.P.; Slack M.C.
66 Barkly Street,Fitzroy North, Vic. 3068 Australia
British Journal of Obstetrics and Gynaecology (BR. J. OBSTET. GYNAECOL.) (United Kingdom) 1994, 101/6 (536-540)
CODEN: BJOGA ISSN: 0306-5456
DOCUMENT TYPE: Journal; Article
LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH

Transvaginal sacrospinous colpopexy for vault **and marked** uterovaginal prolapse

Objective To assess the results of the sacrospinous colpopexy **procedure** for the **treatment** of vault **prolapse** following hysterectomy and marked **uterovaginal prolapse** . Design A prospective study of all patients undergoing sacrospinous colpopexy for **vault** and marked **uterovaginal prolapse** between December 1991 and December 1992. Setting Kent and Canterbury Hospital, Canterbury. Subjects Forty women with vault prolapse following hysterectomy and 24 with marked **uterovaginal prolapse** . Interventions All patients underwent posterior **vaginal** repair, enterocele sac obliteration and sacrospinous colpopexy. In 48 patients an anterior **vaginal** repair with suburethral buttressing **sutures** was also performed. A long-needle bladder neck **suspension operation** (Raz **procedure**) was included for three women with coexistent stress incontinence. In 13 patients a **vaginal** hysterectomy was performed and in 11 the uterus was conserved. A postanal sacrorectopexy was performed...

...these underwent a successful repeat sacrospinous colpopexy and repair. The main long term complication was **cystocele** formation. One sexually active patient complained of dyspareunia following surgery. Conclusion The sacrospinous colpopexy is effective in the treatment of vault prolapse and compares favourably with abdominal vault supporting **procedures** . It avoids major abdominal **surgery** and allows the surgeon to **correct** coexistent **cystocele** and **rectocele** . This **procedure** is also a useful adjuvant when treating marked **uterovaginal prolapse** .
MEDICAL DESCRIPTORS:
* **uterus prolapse** ; * **vagina prolapse**
...article; clinical trial; female; follow up; human; hysterectomy; major clinical study; postoperative complication; priority journal; **surgical technique** ; **vagina reconstruction**
1994

30/3,K/64 (Item 33 from file: 73)
DIALOG(R)File 73:EMBASE
(c) 2004 Elsevier Science B.V. All rts. reserv.

05757981 EMBASE No: 1994169634
Round ligament synthetic graft **colpopexy**
Harer Jr. W.B.
St. Bernardine Medical Center, 399 East Highland Avenue,San Bernardino, CA 92404 United States
Obstetrics and Gynecology (OBSTET. GYNECOL.) (United States) 1994, 83/6 (1064-1066)
CODEN: OBGNA ISSN: 0029-7844
DOCUMENT TYPE: Journal; Article
LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH

Round ligament synthetic graft **colpopexy**

Massive **vaginal prolapse** in ten post-hysterectomy women was treated by expanded polytetrafluoroethylene **graft** along the course of the round **ligaments** to **anchor** the **vaginal vault** to the lateral abdominal wall. Concurrent enterocele repair was done as well as other indicated abdominal or **vaginal** operations. Satisfactory coitus was reported in all cases. The procedure is technically simple and provides an alternative to **sacral** suspension or sacrospinous **ligament** suspension of the **prolapsed vaginal vault** .
MEDICAL DESCRIPTORS:
*hysterectomy; * **vagina prolapse** --surgery--su; * **vagina prolapse** --complication--co
adult; aged; article; clinical article; female; human; priority journal; **surgical technique**
1994

30/3,K/74 (Item 43 from file: 73)
DIALOG(R)File 73:EMBASE
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03305101 EMBASE No: 1986012678

Abdominal repair of vaginal prolapse **and the postoperative outcome as judged by a scoring system and X-ray colpography**

Nagata I.; Kato K.; Furuya K.; Kuki E.
Department of Obstetrics and Gynecology, National Defense Medical College, Tokorozawa 359 Japan

Archives of Gynecology (ARCH. GYNECOL.) (Germany) 1985, 237/1 (11-17)
CODEN: ARCGD
DOCUMENT TYPE: Journal
LANGUAGE: ENGLISH

Abdominal repair of vaginal prolapse **and the postoperative outcome as judged by a scoring system and X-ray colpography**

Three abdominal **procedures** were combined to **suspend** the **prolapsed vagina** in patients with post-hysterectomy vault **prolapse** and a narrow **vagina** and **uterine prolapse** with pelvic diseases (such as fibroids) necessitating laparotomy. We used Moschcowitz's method (obliteration of the cul-de-sac by purse-string **sutures**), Burch's method (fixation of the anterior **vaginal wall** to Cooper's **ligament**) and Williams and Richardson's **method** (**suspension** of the **vaginal** stump using fascial strips from the external oblique aponeurosis). The postoperative outcome of 8 **operations** was judged by a scoring **system** and by X-ray colpography with superimposition of films obtained at rest and during straining (subtraction technic). The scoring system indicated that the anterior **vaginal wall** and the **vaginal vault** were well supported by this combination procedures. However, the **prolapse** of the lower posterior **vaginal wall** needed an additional **vaginal** repair. The X-ray colpogram showed that the axis of the repaired **vagina** was slightly more vertical than normal. But displacement of the **vagina** on straining was within the normal range. Neither dyspareunia nor stress urinary incontinence were seen ...

MEDICAL DESCRIPTORS:
*colposuspension; *dyspareunia; * **uterus prolapse** ; * **vagina prolapse**
1985

30/3,K/75 **(Item 44 from file: 73)**
DIALOG(R)File 73:EMBASE
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02639264 EMBASE No: 1984158222
Treatment of recurrent urinary incontinence
Schaeffer A.J.
Northwestern University Medical School, Chicago, IL 60611 United States
Clinical Obstetrics and Gynecology (CLIN. OBSTET. GYNECOL.) (United States) 1984, 27/2 (459-473)
CODEN: COGYA
DOCUMENT TYPE: Journal
LANGUAGE: ENGLISH

Approximately 10-40% of women who undergo successful surgical correction of urinary incontinence will have recurrent...

...but some will have total urinary incontinence without any relation to physical activity or to **position** and not recognize a stress component of their incontinence. Patients with total urinary incontinence as...

...curable urinary incontinence, which is achieved by elevation of the internal vesical neck to a **position** behind the symphysis pubis. All other types of urinary incontinence, except in a few selected patients with neuropathic **bladders** and **severe** spontaneous detrusor contractions in whom cystolysis or **vaginal** resection of the inferior hypogastric plexus can successfully denervate the bladder, are surgically incurable. Although surgical cure may be achieved with a variety of retropubic and **vaginal** operations, we prefer the endoscopic **suspension** of the vesical neck **procedure** described by Stamey in 1973. This operation incorporates endoscopic control to insure accurate **placement** of #2 nylon **sutures** on both sides of the internal vesical neck, thus suspending the pubocervical fascia in a permanent buttressed loop. Open pelvic surgery is not required, thereby decreasing **operative** morbidity. This **procedure** is a particularly attractive approach for problems associated with the surgically difficult pelvis such as...

...measurements can be made during surgery to assure the surgeon that the incontinence has been **corrected** . Although this **procedure** utilizes special needles and endoscopic control for **placement** of the **sutures** , the original concept and credit belongs to Pereyra, who initially showed the feasibility of suspending the pubocervical fascia by the passage of a **suture** through a special needle from the abdominal **wall** to the **vagina** .
1984

30/3,K/76 (Item 45 from file: 73)
DIALOG(R)File 73:EMBASE
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02272689 EMBASE No: 1982003850
Enterocele: prophylaxis and treatment
ENTEROCELE: PROPHYLAXE UND THERAPIE
Webb M.J.
Div. Gynecol. Surg., Mayo Clin., Mayo Med. Sch., Rochester, MN 55905 United States
Gynakologe (GYNAKOLOGE) (Germany) 1981, 14/3 (187-191)
CODEN: GYNKA
DOCUMENT TYPE: Journal
LANGUAGE: GERMAN

The techniques applied in the author's clinic for prevention and treatment of **vaginal prolapse** after hysterectomy are both based on the same important principles: excision of the enterocele sac; high obliteration of the cul-de-sac of Douglas; and dorsal fixation of the **vaginal wall** by **anchoring** it either to the posterior portion of the endopelvic fascia, when the **vaginal** approach is used, or to the presacral fascia when the abdominal approach is used. In the author's opinion, the **vaginal operation** is the **procedure** of choice: it is safe and effective and causes less trauma. Possibly, however, it requires greater surgical skill. The abdominal approach is required only when a different, **vaginal** method would result in loss of **vaginal** function and the patient prefers to remain capable of cohabitation.
1981

30/3,K/83 **(Item 1 from file: 95)**
DIALOG(R)File 95:TEME-Technology & Management
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01073069 F97020180982
The endoscopic fascial sling for treatment of female urinary stress incontinence
(Endoskopische Fascialschlinge zur Behandlung der weiblichen Harninkontinenz auf Grund von Stress)
Loughlin, KR
Harvard Med. School, Boston, USA
Journal of Urology, v155, n4, pp1265-1267, **1996**
Document type: journal article Language: English
Record type: Abstract
ISSN: 0022-5347

1996

ABSTRACT:
...performed with the patient under spinal or general anesthesia. A horizontal suprapubic incision is made **approximately** 1 fingerbreadth above the symphysis pubis and extended downwards to the rectus fascia, and a 5 cm long x 1.5 cm wide strip of **fascia** is harvested. The **fascial defect** is closed with 2-zero polydioxanone **sutures** and No 2 polypropylene **sutures** are **placed** through either end of the fascial strip. After a Foley catheter has been **placed** in the bladder, a 2 cm horizontal incision is made in the anterior **vaginal wall** . With sharp dissection the urethra is mobilized and the periurethral space is developed up to but not through the endopelvic fascia. A Stamey needle is **placed** from above through the suprapubic incision and out the **vaginal** incision, and the ends of the polypropylene **sutures** are **placed** through the eye of the Stamey needle and brought up through the suprapubic incision as would be done during any needle **suspension procedure** . Four passes of the needle are performed, 2 on either side of the urethra. Cystoscopy is performed after each needle pass to **locate** any inadvertent bladder perforation. The anterior **vaginal wall** incision is then closed with a running 3-zero chromic **suture** . There were no urethral erosions or wound infections using the fascial strip. Of the women...

...urinary stress incontinence, combining the reliability of sling procedures and the decreased morbidity of needle **suspension techniques** .

30/3,K/88 (Item 5 from file: 144)
DIALOG(R)File 144:Pascal
(c) 2004 INIST/CNRS. All rts. reserv.

13341719 PASCAL No.: 98-0068221
Uterosacral ligament **fixation for** vaginal **vault suspension in** uterine **and** vaginal vault prolapse . **Discussion**
JENKINS V R; ARONSON M P comment
Department of Obstetrics and Gynecology, University of Kentucky Medical Center, United States
Annual Meeting of the Society of Gynecologic Surgeons, 23 (New Orleans, Louisiana USA) 1997-02-24
Journal: American journal of obstetrics and gynecology, **1997** , 177 (6) 1337-1344
Language: English

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Uterosacral ligament **fixation for** vaginal **vault suspension in** uterine **and** vaginal vault prolapse . **Discussion**
1997
... this study was to determine the simplicity, safety, anatomic, and functional success of using the **uterosacral ligaments** for correction of significant complex **uterine** and **vaginal vault** prolapse by the **vaginal** route. STUDY DESIGN: Fifty women with **uterine** or **vaginal vault prolapse** with **descent** of the cervix or the **vaginal vault** to the introitus or greater were treated between 1993 and 1996 by the same surgeon with bilateral **uterosacral ligament** fixation to the **vaginal** cuff by the **vaginal** route. Included were patients with significant enterocele, **cystourethrocele** , **rectocele** , and stress urinary incontinence who had concomitant repair of coexisting pelvic support **defects** . An etiology of **vaginal vault prolapse** is discussed. RESULTS: **Uterosacral ligaments** were identified and used for successful **vaginal vault** suspension by the **vaginal** route in all 50 consecutive patients without subsequent failure or significant complications with a maximum...

...up of 4 years. One patient had recurrent stress urinary incontinence and two had asymptomatic **cystoceles** . Three patients had erosion of monofilament **sutures** at the **vaginal** apex. CONCLUSIONS: In these 50 patients with significant complex **uterine** or **vaginal** vault **prolapse** , **uterosacral ligaments** could always be identified and safely used for **vaginal vault** suspension by the **vaginal** route with no persistence or recurrence of **vaginal vault prolapse** 6 to 48 months after surgery. Excessive tension by the surgeon on tagged **uterosacral ligaments** at the time of hysterectomy may be an etiologic factor in **vaginal vault prolapse** .
English Descriptors: Surgical suspension; Fixation; Treatment; **Prolapsus** ; **Vagina** ; **Uterus** ; **Vaginal route** ; **Treatment** efficiency; Safety; **Technique** ; Human; Female

French Descriptors: Suspension chirurgicale; Fixation; Traitement; **Prolapsus** ; **Vagin** ; **Uterus** ; Voie **vaginale** ; Efficacite traitement; Securite; Technique; Homme; Femelle; **Ligament uterosacre**

Spanish Descriptors: Suspension quirurgica; Fijacion; Tratamiento; **Prolapsus** ; **Vagina** ; **Utero** ; Via **vaginal** ; Eficacia tratamiento; Seguridad; Tecnica; Hombre; Hembra
Broad Descriptors: Surgery; **Vaginal** diseases; Uterine diseases; Female

genital diseases; Chirurgie; **Vagin** pathologie; Uterus pathologie; Appareil genital femelle pathologie; Cirugia; **Vagina** patologia; Utero patologia; Aparato genital hembra patologia

30/3,K/94 (Item 4 from file: 155)
DIALOG(R)File 155:MEDLINE(R)
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13856938 PMID: 9557993
Cystocele **--a radical cure by** suturing lateral sulci **of the** vagina **to the white line of pelvic fascia. 1909.**
White G R
International urogynecology journal and pelvic floor dysfunction (ENGLAND) **1997** , 8 (5) p288-92, ISSN 0937-3462 Journal Code: 9514583
Document type: Classical Article; Historical Article; Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed

Cystocele **--a radical cure by** suturing lateral sulci **of the** vagina **to the white line of pelvic fascia. 1909.**
1997 ,
Descriptors: Bladder Diseases-- **surgery** --SU; *Fascia-- **surgery** --SU; * **Suture Techniques** ; *Urogenital **Surgical Procedures** --history--HI; * **Vagina** -- **surgery** --SU; History of Medicine, 20th Cent.; **Pelvic Floor** -- **surgery** --SU; Urogenital **Surgical Procedures** -- **methods** --MT

30/3,K/96 (Item 6 from file: 155)
DIALOG(R)File 155:MEDLINE(R)
(c) format only 2004 The Dialog Corp. All rts. reserv.

13811366 PMID: 9509323
Feasibility of bilateral sacrospinous ligament vaginal **suspension with a** stapler . **Prospective studies with the 34 first cases]**
Faisabilite de la sacrocolpopexie **vaginale** bilaterale a l'agrafeuse. Etude prospective des 34 premiers cas.
Febbraro W; Beucher G; Von Theobald P; Hamel P; Barjot P; Heisert M; Levy G
Clinique de Gynecologie-Obstetrique et de Reproduction Humaine, CHU, Caen.
Journal de gynecologie, obstetrique et biologie de la reproduction (FRANCE) **1997** , 26 (8) p815-21, ISSN 0368-2315 Journal Code: 0322206
Document type: Journal Article ; English Abstract
Languages: FRENCH
Main Citation Owner: NLM
Record type: Completed

Feasibility of bilateral sacrospinous ligament vaginal **suspension with a** stapler . **Prospective studies with the 34 first cases]**
Faisabilite de la sacrocolpopexie **vaginale** bilaterale a l'agrafeuse. Etude prospective des 34 premiers cas.
1997 ,
OBJECTIVE: Evaluation of the feasibility of bilateral sacropinous ligament suspension with a **stapler** . Morbidity study and short term results. STUDY DESIGN: Prospective study from July 1994 to August 1996. RESULTS: Bilateral **sacrospinous ligament** suspension with a **stapler** was possible in 100% of cases and **surgical technique** is described. Our indications are stage III Bp and stage IV genital prolapses (according to ...

...is performed, in order to prevent enterocele. In 24 patients, the uterus was present. 20 **vaginal** hysterectomies and 4 conservative bilateral **uterine** suspensions were performed. The **sacrospinous ligament** suspension was associated to anterior colporrhaphy (in 74% of patients), repair of **rectocele** (82%), repair of enterocele (26%), posterior colpoperineorrhaphy (79%), bladder neck suspension (71%). No vascular injury...

... 2 patients, a small rectal laceration occurred, and in one patient one branch of the **staple** transfixed the rectal mucosa. Removal of the **staple** was easily performed without any post-operative complication. First results after an average 19 months...
...shows a perfect anatomic result in 77% of cases. We noted one recurrence of a **vaginal vault prolapse** ; the patient underwent a second **sacrospinous ligament** fixation with good result. One patient had a stage II Aa **cystocele** post-operatively and three patients had a short **vagina** (< 6 cm). Patients who were continent before the sacrocolpopexy did not develop further urinary stress-incontinence. CONCLUSION: Bilateral transvaginal **sacrospinous** ligament **suspension** with a **stapler** facilitates the **procedure** . No post- **operative** constipation was noted with this **method** . Our first results are good. The cost of the stappler may limit its extensive use.
Descriptors: Ligaments-- **surgery** --SU; * **Surgical Staplers** ; * **Suture Techniques** ; * **Uterine Prolapse** -- **surgery** --SU; * **Vagina** -- **surgery** --SU...; Hernia--etiology--ET; Hernia--prevention and control--PC; Middle Aged; Prospective Studies; Recurrence; Treatment Outcome; **Uterine**

Prolapse --classification--CL; **Uterine** **Prolapse** --complications--CO

30/3,K/97 (Item 7 from file: 155)
DIALOG(R)File 155:MEDLINE(R)
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13760267 PMID: 9457981

A new, simplified posterior culdoplasty and vaginal vault **suspension during abdominal hysterectomy.**

Ostrzenski A
Department of Obstetrics and Gynecology, Howard University, College of Medicine and University Hospital, Washington, DC, USA.

International journal of gynaecology and obstetrics- the official organ of the International Federation of Gynaecology and Obstetrics (IRELAND) Apr **1995** , 49 (1) p25-34, ISSN 0020-7292 Journal Code: 0210174
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed

A new, simplified posterior culdoplasty and vaginal vault **suspension during abdominal hysterectomy.**

Apr **1995** ,
OBJECTIVE: A new **surgical technique** of creating a prophylactic, **reconstructive** posterior culdoplasty and **vaginal vault** suspension during abdominal hysterectomy is described. The **procedure restores** the pelvic topography and gross and functional anatomy after removal of the uterus. A **systematic** order of the **operation** , its safety and effectiveness are presented and illustrated. **METHODS** : This **surgical technique** has been studied for 10 years, from 1983 to 1993, in a group of 250...

...elements were introduced to achieve post-hysterectomy restoration of the posterior cul-de-sac and **vaginal vault** suspension: the deep layer of the **uterosacral ligaments** and pararectal- **paravaginal** fascia are incorporated for reconstructive posterior culdoplasty; the cardinal ligaments and the deep and superficial layers of the **uterosacral ligaments** are used for anatomical **vaginal vault** suspension from the latero-posterior aspect of the **vaginal wall** . RESULTS: This study has documented a good outcome and effectiveness of the operation as well as good postsurgical patient satisfaction, with no symptomatology or signs of dysfunctional **vagina** , **vaginal prolapse** or enterocele formation. CONCLUSION: This new prophylactic procedure is effective, safe, simple to learn, easy...

... to the overall surgical time. Restoration of the pelvic topography, functional anatomy, prevention of dysfunctional **vagina** , **vaginal prolapse** and pelvic **hernia** (enterocele) formation can be achieved by following this technique. Post-hysterectomy dysfunctional **vagina** , **vaginal prolapse** and pelvic **hernia** formation are preventable occurrences when a surgical operation is appropriately selected and properly executed.

Descriptors: Hysterectomy--adverse effects--AE; *Postoperative Complications--prevention and control--PC; * **Uterine Prolapse** --prevention and control--PC; * **Vagina** --surgery--SU; Adult; Aged; Evaluation Studies; Follow-Up Studies; Gynecologic **Surgical Procedures** -- **methods** --MT; Hernia--prevention and control--PC; Hysterectomy-- **methods** --MT; Ligaments--surgery--SU; Ligation; Middle Aged; Pelvic Floor; Postoperative Complications--etiology--ET; Prognosis; **Reconstructive Surgical Procedures** -- **methods** --MT; **Suture Techniques** ; **Uterine Prolapse** -- **surgery** --SU

30/3,K/101 (Item 11 from file: 155)
DIALOG(R)File 155:MEDLINE(R)
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13130288 PMID: 8798088
A new needle suspension procedure **for genuine stress incontinence and anterior** vaginal wall prolapse .
Colakoglu M; Capar M; Kilic M; Colakoglu U; Kaya H; Acar A
Department of Obstetrics and Gynecology, Selcuk University, Konya, Turkey.
International urogynecology journal and pelvic floor dysfunction (ENGLAND) **1996** , 7 (2) p64-7; discussion 67-8, ISSN 0937-3462
Journal Code: 9514583
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed

A new needle suspension procedure **for genuine stress incontinence and anterior** vaginal wall prolapse .
1996 ,
A new **suspension method** was developed for the **correction** of anterior **vaginal wall** relaxation and genuine stress incontinence. This **procedure suspends** the anterior **vaginal wall** to the anterior rectus fascia, and in doing so gives support to the bladder neck, anterior **vaginal wall** and **vaginal** apex. The procedure is performed at the time of **vaginal** hysterectomy or correction of anterior **vaginal wall** relaxation. The authors present their experience with this technique in 31 patients.
Descriptors: **Suture Techniques** ; *Urinary Incontinence, Stress--**surgery** --SU; * **Uterine Prolapse** --surgery--SU; Fascia--surgery--SU; Follow-Up Studies; Hysterectomy, **Vaginal** ; Middle Aged; Muscle, Skeletal --surgery--SU; Postoperative Complications; Prospective Studies; Recurrence ; Urinary Incontinence, Stress--physiopathology...

30/3,K/106 (Item 16 from file: 155)
DIALOG(R)File 155:MEDLINE(R)
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12684791 PMID: 7607379
Surgical treatment of vaginal prolapse **after hysterectomy]**
Zur operativen Behandlung des Scheidenvorfalls nach Hysterektomie.
Dellas A; Almendral A C.
Universitats-Frauenklinik am Kantonsspital Basel.
Geburtshilfe und Frauenheilkunde (GERMANY) May **1995** , 55 (5) p244-6 , ISSN 0016-5751 Journal Code: 0370732
Document type: Journal Article ; English Abstract
Languages: GERMAN
Main Citation Owner: NLM
Record type: Completed

Surgical treatment of vaginal prolapse **after hysterectomy]**
May **1995** ,
Forty-five women were treated with a **sacrospinous ligament** fixation of the **vaginal** apex between 1979 and 1993. The patients had a complete **vaginal prolapse** following abdominal or **vaginal** hysterectomy or in three cases a combined **uterine** and **vaginal prolapse** . The **sacrospinous ligament** fixation was carried out as described by Amreich, Sederl and Richter. The fixation of the **vagina** was successful performed in 43 women. These results were obtained using absorbable **suture** material. A sciatic nerve damage was observed in two patients for a short time with spontaneous recovery, coincident with **suture** absorption and nerve regeneration. We consider and recommend fixation of the **vaginal** apex to the **sacrospinous ligament** as the **technique** preferred for the **operative treatment** of a **vaginal prolapse** and for the rare cases of **uterine prolapse** , which cannot be corrected otherwise.
Descriptors: Hysterectomy; *Postoperative Complications--surgery--SU; * **Uterine Prolapse** --surgery--SU...; Rectal Diseases--surgery--SU; Reoperation; Urinary Incontinence, Stress--etiology--ET; Urinary Incontinence, Stress--surgery--SU; **Uterine Prolapse** --etiology--ET

30/3,K/112 (Item 22 from file: 155)
DIALOG(R)File 155:MEDLINE(R)
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10718284 PMID: 10835803

Laparoscopic extraperitoneal sacrospinous suspension for vaginal vault prolapse .

Lee C L; Wang C J; Yen C F; Soong Y K
Department of Obstetrics and Gynecology, Chang Gung Memorial Hospital, Taipei, R.O.C. chyilong@ms21.hinet.net

Changgeng yi xue za zhi / Changgeng ji nian yi yuan = Chang Gung medical journal / Chang Gung Memorial Hospital (CHINA (REPUBLIC: 1949-)) Feb **2000** , 23 (2) p87-91, Journal Code: 9809559
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed

Laparoscopic extraperitoneal sacrospinous suspension for vaginal vault prolapse .

Feb **2000** ,

BACKGROUND: A new laparoscopic sacrospinous **suspension procedure** is described for the correction of **vaginal vault prolapse** using an extraperitoneal approach. This is the first report in the literature of the extraperitoneal approach. METHODS: We reviewed 12 women who had been **treated** in our hospital using this **technique** because of **vaginal vault prolapse** . These women had undergone hysterectomies (10 abdominal; 2 **vaginal**) between 5 and 22 years previously (mean, 12 years). After pre-laparoscopic preparation, a 10-mm trocar with a 10-mm zero-degree telescope was **placed** into the Retzius space. Using a direct air-distended method with a 20 mmHg insufflation pressure, Retzius and para-rectal spaces were created. The **sacrospinous** ligament could be easily identified and confirmed. A permanent suture was then inserted from the **sacrospinous** ligament to the **vaginal vault** to ensure that there was no space in between. RESULTS: This procedure was followed for...

... 12 patients. There were no major complications during surgery. Eleven women had no recurrence of **vaginal vault prolapse** during a follow-up period of 1 to 3 years (mean, 2.2 years). One patient developed recurrent **vaginal vault prolapse** ; however, she subsequently underwent a successful colposacropexy by laparoscopy 23 months after the initial surgery. CONCLUSION: We modified the traditional sacrospinous fixation laparoscopically, following principles to restore the correct anatomic **position** of the vault. Laparoscopic extraperitoneal sacrospinous **suspension** can eliminate the **procedure** of opening and closing the peritoneum and avoid interference with the intestine during surgery. It...

Descriptors: Laparoscopy; * **Uterine Prolapse** --surgery--SU; Aged; Gynecologic **Surgical Procedures** -- **methods** --MT; Ligaments-- **surgery** --SU; Middle Aged

30/3,K/114 (Item 24 from file: 155)
DIALOG(R)File 155:MEDLINE(R)
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10476366 PMID: 10576197
Abdominal sacrospinous ligament **colposuspension.**
Hale D S; Rogers R M
Department of Urogynecology, Methodist Hospital/Indiana University Hospital, Indianapolis 46202, USA. dough22@aol.com
Obstetrics and gynecology (UNITED STATES) Dec **1999** , 94 (6) p1039-41, ISSN 0029-7844 Journal Code: 0401101
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed

Abdominal sacrospinous ligament **colposuspension.**
Dec **1999** ,
BACKGROUND: When an abdominal approach is chosen for repair of pelvic **prolapse** , a **paravagi**nal repair is often used to correct lateral **cystoceles** and a retropubic urethropexy to correct genuine stress incontinence. If concomitant **vaginal vault prolapse** exists, an approach for **vaginal vault** support, which can be done through the space of Retzius, would be beneficial. We describe an abdominal approach to the **sacrospinous ligament** . TECHNIQUE: The space of Retzius is accessed and important anatomic landmarks, including the obturator canal and neurovascular bundle, **paravaginal** veins, bladder, and ischial spine, are identified. The **sacrospinous ligament** complex is palpated and exposed. The superior posterolateral **vaginal wall** is then fixed to the complex. Often a bilateral repair is possible. EXPERIENCE: Fifty-five women at two centers had abdominal **sacrospinous** ligament colpopexies for **vaginal vault prolapse** . All had other repairs for pelvic organ prolapse. No follow-up operations were needed for...

... prolapse, over an average of 23 months follow-up. CONCLUSION: An abdominal approach to the **sacrospinous ligament** complex can be used, providing **pelvic reconstruction surgeons** with an alternative **technique** for **vaginal vault** support when other space-of-Retzius procedures are required.
Descriptors: Gynecologic **Surgical Procedures** -- **methods** --MT; * **Suture Techniques** ; * **Uterine Prolapse** -- **surgery** --SU; Bladder Diseases --complications--CO; Bladder Diseases--surgery--SU; Ligaments--surgery--SU ; **Rectocele** --complications--CO; **Rectocele** --surgery--SU; **Uterine Prolapse** --complications--CO

Set	Items	Description
S1	21367	VAGIN? OR PARAVAGIN?
S2	591595	(METHOD? OR SYSTEM? OR TECHNIQ? OR PROCESS? OR PROCEDUR?)(-5N)(SURG? OR CHIRURG? OR MEDIC? OR OPERAT? OR REPAIR? OR REPARAT? OR TREAT? OR REBUIL? OR FIX OR FIXE? OR FIXING OR OVERHAUL? OR RECONSTRUCT?)
S3	153057	(METHOD? OR SYSTEM? OR TECHNIQ? OR PROCESS? OR PROCEDUR?)(-5N)(SUSPEN? OR MEND? OR RECTIF? OR REMED? OR CORRECT? OR CURE? OR CURING OR RESTOR?)
S4	5448	(METHOD? OR SYSTEM? OR TECHNIQ? OR PROCESS? OR PROCEDUR?)(-5N)(RECONSTIT? OR REHABIL? OR VAGINOPLAST? OR PARAVAGINOPLAST-?)
S5	153	(INFERIO? OR SUPERIO?)()LATERAL? OR LATERAL?()SULC? OR VAGIN?()SULC? OR PARAVAGIN?()SULC? OR LATERAL?()(VAGIN? OR PELVI-?)
S6	2653	(PELVI? OR UTER? OR VAGIN? OR PARAVAGIN? OR ENDOPELV?)(3N)-(FLOOR? OR SIDEWALL? OR SIDE()WALL? OR WALL? OR VAULT? OR EPITHEL?) OR LEVATOR()(ANI OR ANIS)
S7	395	(VAGIN? OR PARAVAGIN? OR SACROSPIN? OR PELVI? OR UTEROSACR? OR SACRA? OR UTER? OR ENDOPELV?)(5N)(LIGAMENT? OR TENDON? OR TENDIN? OR SINEW?)
S8	239	CYSTOCEL? OR RECTOCEL? OR VESICOCEL? OR CYSTOURETHROCEL? OR URETHROCEL?
S9	10949	(EPITHEL? OR EPIDERM? OR SKIN? OR TISSUE? OR MUSCL? OR FASCIA? OR VAGIN? OR PARAVAGIN? OR BLADDER? OR UTER? OR SHEATH? - OR WOMB?)(5N)(LAX OR TORN? OR TEAR? OR STRETCH? OR RIPPED OR - LACERAT? OR HERNIA? OR DISTEN? OR FISSUR? OR DESCEN? O...
S10	31508	(EPITHEL? OR EPIDERM? OR SKIN? OR TISSUE? OR MUSCL? OR FASCIA? OR VAGIN? OR PARAVAGIN? OR BLADDER? OR UTER? OR SHEATH? - OR WOMB?)(5N)(SEVER? OR OVEREXTEN? OR PROLAPS? OR COLLAPS? OR DEFECT? OR BULG? OR PROTRUS? OR PROTRUD? OR MALPOSITI...
S11	1481493	PLACE? OR PLACING OR LOCAT? OR SITUAT? OR EMPLAC? OR IMPLAC? OR EMPLANT? OR IMPLANT? OR ENGRAFT? OR GRAFT? OR POSITION? OR AFFIX?
S12	1441845	CONNECT? OR ATTACH? OR FASTEN? OR SECURE? OR SECURING? OR - INSERT? OR LOCK? OR APPROXIMAT? OR IMMOBIL?
S13	384394	FIXAT?(3N)(DEVIC? OR APPARAT? OR TOOL? OR IMPLEMENT? OR INSTRUMENT? OR EQUIPM? OR UTENSIL? OR APPLIANC?) OR ANCHOR? OR - SCREW? OR SUTUR? OR CLEAT? OR CLIP? OR CLAMP?
S14	265451	STAPL? OR TACK? OR BRAD? OR RIVET? OR FASTENER? OR TOGGLE? OR CONNECTOR? OR CONNECTER?
S15	528755	TEMPLAT? OR STENCIL? OR EXEMPLAR? OR PROTOTYP? OR GUIDE?
S16	56386	IC=(A61B? OR A61D?)
S17	16078	S1 AND S2:S4
S18	710	S17 AND S16
S19	662	S17 AND S1(10N)S2:S4
S20	1236	S18:S19
S21	479	S20 AND S5:S7
S22	605	S20 AND S8:S10
S23	325	S21 AND S22
S24	351	S21:S22 AND S11:S12(5N)S13:S14
S25	240	S23 AND S11:S12 AND S13:S14
S26	400	S24:S25
S27	374	S26 AND S15:S16
S28	400	S26:S27
S29	155	S28 AND S2:S4(10N)S5:S10
S30	195	S28 AND S11:S14(10N)S5:S7
S31	90	S29 AND S30
S32	260	S29:S30
S33	189	S32 AND S15

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S34         191   S32 AND S16
S35         249   S31 OR S33 OR S34
S36          96   S35 AND S5:S7(20N)S8:S10
S37          96   IDPAT (sorted in duplicate/non-duplicate order)
S38          38   S31 NOT S36
S39          38   IDPAT (sorted in duplicate/non-duplicate order)
? show files
File 348:EUROPEAN PATENTS 1978-2004/Sep W03
         (c) 2004 European Patent Office
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         (c) 2004 WIPO/Univentio
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Set	Items	Description
S1	21367	VAGIN? OR PARAVAGIN?
S2	591595	(METHOD? OR SYSTEM? OR TECHNIQ? OR PROCESS? OR PROCEDUR?)(-5N)(SURG? OR CHIRURG? OR MEDIC? OR OPERAT? OR REPAIR? OR REPARAT? OR TREAT? OR REBUIL? OR FIX OR FIXE? OR FIXING OR OVERHAUL? OR RECONSTRUCT?)
S3	153057	(METHOD? OR SYSTEM? OR TECHNIQ? OR PROCESS? OR PROCEDUR?)(-5N)(SUSPEN? OR MEND? OR RECTIF? OR REMED? OR CORRECT? OR CURE? OR CURING OR RESTOR?)
S4	5448	(METHOD? OR SYSTEM? OR TECHNIQ? OR PROCESS? OR PROCEDUR?)(-5N)(RECONSTIT? OR REHABIL? OR VAGINOPLAST? OR PARAVAGINOPLAST-?)
S5	153	(INFERIO? OR SUPERIO?)()LATERAL? OR LATERAL?()SULC? OR VAGIN?()SULC? OR PARAVAGIN?()SULC? OR LATERAL?()(VAGIN? OR PELVI-?)
S6	2653	(PELVI? OR UTER? OR VAGIN? OR PARAVAGIN? OR ENDOPELV?)(3N)-(FLOOR? OR SIDEWALL? OR SIDE()WALL? OR WALL? OR VAULT? OR EPITHEL?) OR LEVATOR()(ANI OR ANIS)
S7	395	(VAGIN? OR PARAVAGIN? OR SACROSPIN? OR PELVI? OR UTEROSACR? OR SACRA? OR UTER? OR ENDOPELV?)(5N)(LIGAMENT? OR TENDON? OR TENDIN? OR SINEW?)
S8	239	CYSTOCEL? OR RECTOCEL? OR VESICOCEL? OR CYSTOURETHROCEL? OR URETHROCEL?
S9	10949	(EPITHEL? OR EPIDERM? OR SKIN? OR TISSUE? OR MUSCL? OR FASCIA? OR VAGIN? OR PARAVAGIN? OR BLADDER? OR UTER? OR SHEATH? - OR WOMB?)(5N)(LAX OR TORN? OR TEAR? OR STRETCH? OR RIPPED OR - LACERAT? OR HERNIA? OR DISTEN? OR FISSUR? OR DESCEN? O...
S10	31508	(EPITHEL? OR EPIDERM? OR SKIN? OR TISSUE? OR MUSCL? OR FASCIA? OR VAGIN? OR PARAVAGIN? OR BLADDER? OR UTER? OR SHEATH? - OR WOMB?)(5N)(SEVER? OR OVEREXTEN? OR PROLAPS? OR COLLAPS? OR DEFECT? OR BULG? OR PROTRUS? OR PROTRUD? OR MALPOSITI...
S11	1481493	PLACE? OR PLACING OR LOCAT? OR SITUAT? OR EMPLAC? OR IMPLAC? OR EMPLANT? OR IMPLANT? OR ENGRAFT? OR GRAFT? OR POSITION? OR AFFIX?
S12	1441845	CONNECT? OR ATTACH? OR FASTEN? OR SECURE? OR SECURING? OR - INSERT? OR LOCK? OR APPROXIMAT? OR IMMOBIL?
S13	384394	FIXAT?(3N)(DEVIC? OR APPARAT? OR TOOL? OR IMPLEMENT? OR INSTRUMENT? OR EQUIPM? OR UTENSIL? OR APPLIANC?) OR ANCHOR? OR - SCREW? OR SUTUR? OR CLEAT? OR CLIP? OR CLAMP?
S14	265451	STAPL? OR TACK? OR BRAD? OR RIVET? OR FASTENER? OR TOGGLE? OR CONNECTOR? OR CONNECTER?
S15	528755	TEMPLAT? OR STENCIL? OR EXEMPLAR? OR PROTOTYP? OR GUIDE?
S16	56386	IC=(A61B? OR A61D?)
S17	16078	S1 AND S2:S4
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S20	1236	S18:S19
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S23	325	S21 AND S22
S24	351	S21:S22 AND S11:S12(5N)S13:S14
S25	240	S23 AND S11:S12 AND S13:S14
S26	400	S24:S25
S27	374	S26 AND S15:S16
S28	400	S26:S27
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S30	195	S28 AND S11:S14(10N)S5:S7
S31	90	S29 AND S30
S32	260	S29:S30
S33	189	S32 AND S15
S34	191	S32 AND S16

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S35        249   S31 OR S33 OR S34
S36         96   S35 AND S5:S7(20N)S8:S10
S37         96   IDPAT (sorted in duplicate/non-duplicate order)
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File 348:EUROPEAN PATENTS 1978-2004/Sep W03
         (c) 2004 European Patent Office
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37/3,K/2 (Item 2 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
(c) 2004 WIPO/Univentio. All rts. reserv.

00751352 **Image available**
DEVICE FOR TREATING A PROLAPSE **BY** VAGINAL **SUSPENSION**
DISPOSITIF DE TRAITEMENT DE PROLAPSUS **PAR SUSPENSION** VAGINALE
Patent Applicant/Assignee:
SOFRADIM PRODUCTION, 116, avenue du Formans, F-01600 Trevoux, FR, FR (Residence), FR (Nationality), (For all designated states except: US)
Patent Applicant/Inventor:
GASTON Richard-Pierre, 30, rue Du Bocage, F-33200 Bordeaux-Cauderan, FR, FR (Residence), FR (Nationality), (Designated only for: US)
Legal Representative:
CABINET GERMAIN ET MAUREAU, Boite postale 6153, F-69466 Lyon Cedex 06, FR
Patent and Priority Information (Country, Number, Date):
Patent: WO 200064370 A1 20001102 (WO 0064370)
Application: WO 2000FR874 20000406 (PCT/WO FR0000874)
Priority Application: FR 995487 19990427
Designated States:
(Protection type is "patent" unless otherwise stated - for applications prior to 2004)
JP US
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
Publication Language: French
Filing Language: French
Fulltext Word Count: 4999

=(US) 6695855

FRENCH PRIORITY 27 APRIL 1999

DEVICE FOR TREATING A PROLAPSE **BY** VAGINAL **SUSPENSION**
DISPOSITIF DE TRAITEMENT DE PROLAPSUS **PAR SUSPENSION** VAGINALE
International Patent Class: **A61B-017/04**
Fulltext Availability:
Detailed Description
Claims

English Abstract
...unit (1) formed by an elongated part (5) made from a flexible pierced material, a **suture** (6) linked to a longitudinal extremity of said part (5) and a **suture** needle (7) joined to said **suture** (6). The part (5) is long enough to enable posterior suspension of the **vagina** (2) at the promontory (3), i.e. the front upper part of the sacrum. At the extremity which is joined to the **suture** , the part (5) comprises the following: (i) a distal portion (5c) being of a sufficient...

...that it can cover at least a large part of the posterior part of the **wall** of the **vagina** (2) and (ii) a cut-out (5d) which is rounded and fitted to the side...
...are such to enable the part (5) to be engaged around the base of the **wall** of the **vagina** (2) on at least a large part of the lower half of said wall.The **suture** (6) is **connected** to the base in such a way that it is offset sidewise in relation to...

37/3,K/9 **(Item 9 from file: 348)**
DIALOG(R)File 348:EUROPEAN PATENTS
(c) 2004 European Patent Office. All rts. reserv.

01731142
Surgical instrument and method for treating female urinary incontinence
Chirurgisches Instrument und Verfahren zur Behandlung der weiblichen Harninkontinenz
Instrument chirurgical et methode permettant de traiter l'incontinence urinaire chez la femme
PATENT ASSIGNEE:
ETHICON, INC., (291330), U.S. Route 22, Somerville New Jersey 08876, (US) , (Applicant designated States: all)
INVENTOR:
Kammerer, Gene W., 14 Stephens Drive, East Brunswick, NJ 08816, (US)
Hoepffner, Hans-Jochen, Beim Reihergehoelz 6A, 25355 Barmstedt, (DE)
Landgrebe, Susanne, Zuckerhut 3, 23867 Sulfeld, (DE)
Luscombe, Brian, 51 Vollers Drive, Branchburg, NJ 08876, (US)
Ulmsten, Ulf, Ridvagen 18D, 18235 Dandervd, (SE)
Lehe, Jorn, Loosduinse Weg 1153, 2571 BE Den Haag, (NL)
Angelini, Laura, Viale Corona Australe 9700040 Colle Romito Ardea, Rome, (IT)
LEGAL REPRESENTATIVE:
Fisher, Adrian John et al (52612), Carpmaels & Ransford, 43-45 Bloomsbury Square, London WC1A 2RA, (GB)
PATENT (CC, No, Kind, Date): EP 1417934 A2 040512 (Basic)
APPLICATION (CC, No, Date): EP 2003256856 031030;
PRIORITY (CC, No, Date): US 285281 021031
DESIGNATED STATES: AT; BE; BG; CH; CY; CZ; DE; DK; EE; ES; FI; FR; GB; GR; HU; IE; IT; LI; LU; MC; NL; PT; RO; SE; SI; SK; TR
EXTENDED DESIGNATED STATES: AL; LT; LV; MK
INTERNATIONAL PATENT CLASS: **A61B-017/04** ; **A61B-017/42** ; A61F-002/00
ABSTRACT WORD COUNT: 124
NOTE:
Figure number on first page: 1

LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200420	445
SPEC A	(English)	200420	6136
Total word count - document A			6581
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Instrument chirurgical et methode permettant de traiter l'incontinence urinaire chez la femme
INTERNATIONAL PATENT CLASS: **A61B-017/04** ...

... **A61B-017/42**

...SPECIFICATION whereby it passes to each side of the urethra, tightening the loop to bring the **vaginal wall** and the urethra into the correct spatial relationship to the pubis, allowing the development of scar tissue between the **vaginal wall** and the anterior wall of the abdomen pubic symphysis, and removing the filamentary element. During this procedure, looping of the filamentary element between the wall of the **vagina** and the rectus abdominis sheath in the anterior wall of the abdomen is traditionally performed...

...909 discloses a surgical instrument comprising a shank having a handle at one end and **connecting** means at the other end to receive, one at a time, two curved needle-like elements which are **connected** at one end to one end of a mesh intended to be **implanted** into the body. In practice, the mesh is passed into the body via the **vagina** first at one end and then at the other end, at one side and the...

...of the urethra to form a loop around the urethra, located between the urethra and **vaginal wall** . The mesh is extended over the pubis and through the abdominal wall and is tightened. The mesh ends are cut at the abdominal wall, and the mesh is left **implanted** in the body. This trans-**vaginal** procedure is exemplified by the TVT product sold by the Gynecare franchise of Ethicon Inc...

...Somerville, NJ, USA. In this procedure two 5 mm needles pass a PROLENE mesh trans- **vaginally** and through the abdomen to create a tension-free support around the mid urethra. United...

...Patent 5,899,909 is incorporated herein by reference in its entirety. During this procedure, **implantation** of the mesh to form a loop around the urethra is traditionally performed while the...

...clinical conditions and the degree of tightening that is required can be assessed.

An alternate **method** to treat SUI is the sling **procedure** . In this procedure a needle or other suture-retrieving device is first **inserted** through the abdomen, above the pubic bone. The needle is **guided** behind the pubic bone, through the subrapubic fascia around the urethra, and out of the body through an incision in the anterior vaginal wall. At this point **sutures** are **attached** to the needle(s) and pulled up back through the abdominal cavity, where the sutures are **fastened** to the rectus muscle.

Techniques for protecting against the puncture of the internal structures during...

...of procedure have included laparoscopic procedures. This involves making an incision in the abdomen and **inserting** a video scope to watch the progress of the needles as they pass through the...

...are not designed to capture a mesh but rather a suture which has been previously **attached** to the mesh or harvested fascia. These needles are generally in the diameter range of...

...a large channel through the fascia. The channel is only wide enough to pass the **suture** . Accordingly, the **sutures** do not possess the elongation properties of the PROLENE mesh and therefore can not provide the tension-free support of the TVT. Also **attaching** a mesh directly to these needles is not optimal because it is very difficult, if...

...through the narrow channel created by the needle.

It would be beneficial to provide a **surgical system** for use in **implanting** a mesh within a female body to prevent incontinence that can be **implanted** either through a trans- **vaginal** approach or a trans-abdominal approach.

It would also be beneficial to provide a surgical system and **method** for use in **implanting** and adjusting a mesh within a female body to prevent incontinence that can be performed...

...of the prior art and provides for a surgical apparatus and a method for the **treatment** of female stress urinary incontinence. The invention

provides a surgical instrument comprising a handle at one end and **connecting** means at the other end to receive, one at a time, two curved needle-like...

...diameter. The distal end of the needle comprises an interlocking coupling means for accepting a **guide** needle or, alternatively, a mesh.

In one embodiment each curved needle **connects** at its proximal end to separate ends of a mesh to be **implanted** within the body. A **guide** needle, similar in structure to a Stamey needle, is passed through the abdomen and behind...

...passes along one side of the urethra and to an incision site at the anterior **vaginal wall** . After the **guide** needle exits the body through the **vagina** , the **guide** needle couples to the distal end of the curved needle. The curved needle is then pushed back through the **vagina** and through the fascia, following the path of the **guide** needle. The curved needle and first end of the mesh pass over the pubis and through the abdominal wall. The **guide** needle is again passed behind the pubic bone from the abdomen, passes along the other side of the urethra to the incision site in the **vaginal wall** . The **guide** needle again couples to the distal end of the second curved needle, which then passes through the **vagina** and fascia, following the second path created by the **guide** needle. The second end of the mesh is extended over the pubis and through the...

...and the mesh is left in the body, creating a tension-free support between the **vaginal wall** and the mid urethra.

In an alternate embodiment a curved needle is passed through the...

...passes along one side of the urethra and to an incision site in the anterior **vaginal wall** . After the curved needle exits the body through the **vagina** , the distal end of the curved needle couples to one end of the mesh to be **implanted** within the body. The curved needle is then pulled back through the **vagina** and through the fascia, following the path it originally created. The curved needle and first...

...abdomen, passes along the other side of the urethra to the incision site in the **vaginal wall** . The needle couples to second end of the mesh and is then pulled back through the **vagina** and fascia, following the second path created by the needle. The second end of the...

...and the mesh is left in the body, creating a tension-free support between the **vaginal wall** and the mid urethra.

In a further alternative embodiment, the **guide** needle is an anesthesia needle and a **connecting** mechanism is provided for **connecting** the distal end of the anesthesia needle to the distal ends of the two curved...

...needles and mesh therethrough. The procedure may be performed, with an anesthesia needle as the **guide** needle used as described hereinabove, along with either two curved needles, one curved needle, or no curved needles, **attached** to the ends of the mesh to be **implanted** into the patient's body.

The invention is also compatible for use in a trans- **vaginal** approach as described in U.S. Patent No. 5,899,909.

The object of the invention is to provide a surgical instrument that **implants** a mesh for treatment of SUI and is capable for using in a trans- **vaginal** or a trans-abdominal procedure.

An advantage of the invention is that it is useful...

...or mesh, interconnecting the needles;

FIGURES 2b-d are alternate embodiments of the mesh and **connecting** means between the mesh and needle;

FIGURE 3a is an assembly diagram for two needles and a **connector** ;

FIGURES 3b-d are alternate embodiments of a **connector** for use in Fig. 3a;

FIGURES 4a-j diagrammatically illustrate several **surgical** steps of a trans-abdominal **method** utilizing two needles and **guide** needle according to the invention to treat SUI;

FIGURES 5a-d illustrate alternate embodiments of coupling the **guide** needle to the needle;

FIGURES 6a-h diagrammatically illustrate several **surgical** steps of a trans-abdominal **method** utilizing a single needle according to an alternate embodiment of the invention to treat SUI...

...alternate embodiments of coupling the needle to the mesh;

FIGURES 8a-i diagrammatically illustrate several **surgical** steps of a trans-abdominal **method** utilizing two needles and two **guide** needles according to the invention to treat SUI; and

FIGURES 9a-9k diagrammatically illustrate several **surgical** steps of a trans-abdominal **method** utilizing two needles and an anesthesia needle according to another alternative embodiment of the invention...

...practiced or carried out in various ways.

The invention discloses an apparatus and method for **treating** SUI. A mesh or tape is passed through pelvic tissue and positioned between the urethra and **vaginal wall** , creating a supportive sling. The mesh provides a structure means for tissue ingrowth and thereby...

...and 2a, in one embodiment the surgical instrument comprises a needle-like element 10 that **attaches** to a mesh 12. Needle element 10 defines a certain radius R to perform the **surgical procedure** discussed herein. The distal end of needle element 10 terminates at a conical section 14...

...wall tissue or blood vessel wall tissue as will be appreciated from the method of **implanting** the mesh as described below.

The proximal end of needle 10 terminates in an **attachment** segment 20 that is adapted to mate and **lock** into a handle 21 as disclosed in US patent no. 5,899,909.

Disposed between...

...order to follow substantially the profile of the pubis between the vagina and the abdominal **wall** . For the purposes of the method as will be discussed in more detail below, shaft...

...10 may also be darkened in shade or color to provide higher visibility while in **place** in the body during a cystoscopy.

Needle 10 may be manufactured as a single, continuous...

...may be manufactured separately from linear portion 20. In this manner the two pieces would **attach** using any conventional attaching means, such as, **screwing** , or other conventional means as is known to those skilled in the art.

Referring to...

...not limited to, autologous, allograft, xenograft, a tissue engineered matrix, or a combination thereof. An **exemplary** synthetic material is PROLENE(R) polypropylene mesh, a mesh having a thickness of 0.7...

...S.A. This material is approved by the U.S. Food and Drug Administration for **implantation** into the human body. A still further embodiment of the mesh 12 is a combination...

...a combination of synthetic material 11 and natural material 13, whereby the natural material is **placed** over or incorporated within a generally central portion of the synthetic material 11. One advantage...
...region of mesh 12 so that after installation of mesh 12, natural material 13 is **positioned** below the urethra and eliminates possible erosion issues at the interface of the urethra and mesh. Natural material 13 may be **connected** to the synthetic material 11 by means of sewing, a bio-compatible glue, cell culturing...

...may be of any convenient shape that suits the intended purpose of the invention. An **exemplary** width is about 1 cm and the length would be dependent upon the size of...

...2d) to provide additional supporting strength and more surface area on which tissue fibers may **attach** . Moreover, mesh 12 may consist of different types of material, such as a bioabsorbable and...

...body tissue to allow for future diagnostic visualization.

In one embodiment mesh 12 may be **attached** to needle segment 20 by means of tying, gluing or other suitable **attaching** means. Preferably, a bio-compatible heat shrink tube fixes mesh 12 onto needle portion 20, Fig. 2a.

Fig. 3a illustrates a needle 10 for use in conjunction with a **guide** needle 110 and coupler 112. **Guide** needle 110 may be configured to have a similar radius R as needle 10. Preferably, **guide** needle 110 has a smaller diameter, about 2 mm. It is possible, however, for **guide** needle 110 to have the same diameter as needle 10. A coupler 112 acts as an interfacing element useful to couple **guide** needle 110 to needle 10. Coupler 112 is substantially elliptical-shaped having a first bore...

...distal end 17 and a second bore opening 116 for accepting the distal end of **guide** needle 110. Preferably, openings 116 and 114 are configured to allow for a press fit **connection** with needles 110 and 10, respectively. Alternatively, openings 114 and 116 may comprise a bio-compatible glue or high-friction material to facilitate a strong **connection** between the needles 10/110 and coupler 112. Coupler 10 may be made from any...

...stainless steel or polyurethane, silicone, rubber or other similar compound.

Figs. 3b-d illustrate alternate **connector** means utilizing a high friction tube 170, such as Tygon. Fig. 3b discloses a tube...

...The larger I.D. would accept needle 10 and the smaller I.D. accepts the **guide** needle 110. Fig. 3c illustrates a tube 172 having both a varying O.D. and I.D. As the needles are **placed** within the tube the decreasing I.D. compresses around the distal ends of the respective needles and the high coefficient of friction securely **anchors** the needles. Fig. 3d illustrates the needles within the tube 172. Preferably, the ends of...

...adds additional drag to the needles as they are pulled through the abdominal cavity.

The **surgical procedure** for trans-abdominally **implanting** mesh 12 using two needles is shown in Figs. 4a-j. In the figures the relevant parts of the female lower abdomen are disclosed, the **vagina** being 50, the uterus 52, the urethra 54, the pubic bone 56, the urinary bladder 58 and the abdominal wall 60. A **guide** needle 110 penetrates the abdominal wall 60, anterior to the pubic bone 56, Fig. 4a...

...exits the body through an incision having been made in the anterior wall

of the **vagina** 50. Coupler 112 **attaches** to the distal end of **guide** needle 110, extending out from the body, and needle 10a, Fig. 4b. One end of mesh 12 is **attached** to the proximal end of needle 10a. The surgeon then retracts **guide** needle 110 back through the abdomen and advances needle 10a through the **vaginal** incision following the same path **guide** needle 110 created, Fig. 4c. The needles pass through the **vaginal wall** and through the soft tissue on one side of the urethra 54, the needles then...

...and pulls needle 10a out of the body through the abdominal wall 60, Fig. 4e.

Guide needle 110 is disconnected from needle 10a, and the surgeon repeats the same **procedure** , but passing the **guide** needle 110 on the opposite side of the urethra 54, Figs. 4f-j, to complete the implantation of the mesh between the mid-urethra and **vaginal wall** using needle 10b.

Figs. 8a-i illustrate an alternate preferred embodiment. A first **guide** needle 110a penetrates the abdominal wall 60, anterior to the pubic bone 56 and follows...

...exits the body through an incision having been made in the anterior wall of the **vagina** 50. A second **guide** needle 110b penetrates the abdominal wall 60, anterior to the pubic bone 56 and follows...

...contour of the pubic bone 56 to the opposite side of the urethra 54 as **guide** needle 110a and exits the body through an incision having been made in the anterior wall of the **vagina** 50, Fig. 8a. At this point, the surgeon may perform a single cystoscopy to confirm the integrity of the bladder 58. Couplers 112a,b **attach** to the distal ends of needles 10a,b. Needle 10a, having one end of mesh 12 **attached** to the proximal end of needle 10a **attaches** to **guide** needle 110a via coupler 112a, Fig. 8b. The surgeon then retracts **guide** needle 110a back through the abdomen and advances needle 10a through the **vaginal** incision following the same path **guide** needle 110a created. The needles pass through the **vaginal wall** and through the soft tissue on one side of the urethra 54, the needles being...

...of the body through the abdominal wall 60, Fig. 8e.

The surgeon repeats the same **procedure** , but removing **guide** needle 110b and advancing needle 10b on the opposite side of the urethra 54, to complete the implantation of the mesh between the mid-urethra and **vaginal wall** using needle 10b, Figs. 8f-i.

Figs. 5a-d illustrate alternate embodiments for coupling needle 10 to **guide** needle 110 to **implant** a mesh 12 trans-abdominally as indicated above. In Figs. 5a-b, the distal end...

...10 is modified to include a bore opening 118 to allow for a press fit **connection** with the distal end of **guide** needle 110. Alternatively, bore-opening 118 may comprise other **connection** means, such as glue or a high-friction material.

In Fig. 5c, the distal end 17 of needle 10 is modified to include a bore opening 120 and a **locking** pin 122. **Guide** needle 110 is modified to include an L-shaped groove 124. The distal end of **guide** needle 110 **inserts** into opening 120 and groove 124 engages **locking** pin 122 and **locks** thereto with a quarter-turn twist. Fig. 5d illustrates a bore opening 126 in **guide** needle 110 to accept a protruding element 128 at the distal end 17 of needle...

...the needle 10 can be used for either a trans-abdominal approach or a trans- **vaginal** approach. In this approach, a kit comprising two needles

10, **attached** to a mesh 12, at least one coupler and at least one **guide** needle may be distributed for use by multiple surgeon specialists. For example, a gynecologist may prefer the trans- **vaginal** approach and will simply discard the **connector** and **guide** needle from the kit. On the other hand, a urologist may prefer the trans-abdominal approach and utilize the **connector** (s) and **guide** needle(s).

Referring now to Figs. 6a-h, an alternate embodiment of the invention utilizes...

...to the mesh 12. In this embodiment, the mesh 12 is modified to create a **connection** means for **connecting** to the distal end of the needle 10. The **connection** means is preferably detachable so that when the mesh is pulled out of the abdominal...

...at least in part, of natural materials, which are otherwise not suitable in the pre- **affixed** embodiment due to the inability of the natural material to survive extended periods in inventory...

...exits the body through an incision having been made in the anterior wall of the **vagina** 50, Fig. 6b. A first end of mesh 12 **attaches** to the distal end of needle 10 via coupling means. The surgeon then retracts needle...

...to follow the needle, Fig. 4c. The needle 10 and mesh 12 pass through the **vaginal wall** and through the soft tissue on one side of the urethra 54. The needle and...

...56.

Needle 10 disconnects from the first mesh end, and the surgeon repeats the same **procedure** , but this time passes the needle 10 on the opposite side of the urethra 54...

...6d-h, to complete the implantation of the mesh 12 between the mid urethra and **vaginal wall** .

Referring to Figs. 7a-g, alternate embodiments for **connecting** the needle 10 to the mesh 12 are disclosed. Figs. 7a-b disclose a coupler...

...138, each with fingers 140 and 142 for engaging groove 120. Mesh 12 is preferably **attached** to the distal end 132 using a biocompatible glue or other appropriate mechanical **fastening** means. The surgeon may simply **attach** or detach needle 10 from coupler 130 by depressing spring tabs 136 and 138 forcing...

...coupler 130. Fingers 140 and 142 engage groove 120 to hold needle 10 firmly in **place** within coupler 130.

Figs. 7c-e illustrate a coupling mechanism 150 similar in function to ...

...distal end 17 of needle 10.

Figs. 7f-g illustrate a loop coupling mechanism 160 **attached** to mesh 12 for engaging groove 120.

As would be appreciated by one skilled in the art, there exist multiple means for detachably **connecting** the mesh to the needle.

Another alternate embodiment of the present invention for trans-abdominally **implanting** mesh 12 while the patient is under local anesthesia only is shown in Figures 9a...

...8a-8i, the alternate embodiment shown in Figures 9a-9k utilizes two needles and a **guide** needle. In this embodiment, however, the **guide** needle is specifically an anesthesia needle 110a capable of delivering

local anesthesia, which is carried...160a of the needles 10a, 10b and the anesthesia needle 110a, respectively, are adapted to **connect** with one another in a manner similar to that shown in Figures 5a and 5b...

...10b and the anesthesia needle 110a could have other configurations, as discussed hereinabove, that facilitate **connecting** their distal ends together during the **implantation** procedure, such as including a separate **connector** element (see Figures 3a-3d) or adapting the distal ends 17a, 17b of the needles 10a, 10b to each include a bore opening and a **locking** pin and adapting the distal end 160a of the anesthesia needle 110a to include an...

...exits the body through an incision having been made in the anterior wall of the **vagina** 50. At various positions along the aforesaid pathway through the patient's abdomen, the anesthesia...

...end 160a of the anesthesia needle 110a extends out of the anterior wall of the **vagina** 50, a first one of the two needles 10a is then **attached** thereto by **inserting** the distal end 160a of the anesthesia needle 110a into the bore opening 118a of...

...10a (see Fig. 9c). It is noted that one end of the mesh 12 is **connected** to the proximal end 19a of the needle 10a in any one of the ways...

...in the patient's body, whereby the needle 10a and the tape, or mesh 12, **attached** thereto are also drawn through the patient's abdomen. The needles 10a, 110a pass through the anterior wall of the **vagina** 50 and through the soft tissue on one side of the urethra 54, the needles...

...54, to complete the implantation of the mesh 12 between the mid-urethra and anterior **wall** of the **vagina** 50, using needle 10b (see Figs. 9f-j). It is noted that this second passage...

...may be performed using two anesthesia needles 110a, 110b (in a manner described previously in **connection** with Figures 8a-8i), rather than only one as shown in Figures 9a-9k. As...

...be performed using an anesthesia needle and only one needle (i.e., needle 10a) removably **attached** to the mesh 12, or one anesthesia needle and no needles **attached** to the mesh 12 (see, for example, Figures 6a-6f).

Since all procedures may be...

...local anesthesia, rather than general anesthesia, they can be performed as outpatient procedures in the **surgeon** 's office or another outpatient facility, rather than requiring admission to a hospital. Additionally, the patient is able to provide feedback to the surgeon during the **procedure** , after the mesh 12 is in **place** . Typically, the urinary bladder 58 is filled with a fluid, such as water, using a...

...The surgeon is able to determine the operation of the urethra and may adjust the **placement** of the mesh 12, as necessary, by adjusting the ends of mesh 12 **located** at the outside of the abdomen 60, Figs. 4h and 5h. After adjustments, the surplus mesh at the abdomen is cut off, and the ends of the mesh are **secured** within the abdomen and the abdomen is closed. Likewise, the incision at the **vaginal wall** is closed whereby the tissue flap seals the mesh between the urethra 54 and the wall of **vagina** 50.

Mesh 12 is left in the body and forms an artificial ligament **attached** to the abdominal wall that provides the support for the urethra as

required in order...

...the foregoing procedures can be performed such that the needles 10, 10a, 10b and the **guide** needles 110, 110a are **connected** to one another at their distal ends within the patient's body (not shown), rather than outside the body proximate to the **vagina** as shown in the various figures (see, for example, Figures 4b, 8b and 9d). As...

...be obvious to persons of ordinary skill in the art, where is it desired to **connect** the needles within the patient's body, a guiding or viewing mechanism will have to be provided so that the distal ends of the needles can be properly aligned and **connected** . Such guiding or viewing mechanisms could include well-known methods such as ultrasound, x-ray...

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see "method" claims in all 3 documents

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SURGICAL INSTRUMENT AND METHOD FOR TREATING ORGAN PROLAPSE CONDITIONS
INSTRUMENT CHIRURGICAL ET METHODE DE TRAITEMENT D'UNE DESCENTE D'ORGANES
Patent Applicant/Assignee:
ETHICON INC, U.S. Route #22, Somerville, NJ 08876-0151, US, US (Residence), US (Nationality)
Inventor(s):
KAMMERER Gene W, 14 Stephens Drive, East Brunswick, NJ 08816, US,
Legal Representative:
JOHNSON Philip S (et al) (agent), Johnson & Johnson, 1 Johnson & Johnson Plaza, New Brunswick, NJ 08933, US,
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Detailed Description
... a second end dimensioned to receive therein and securely engage the distal end of the **guide** needle. Inanotherembodimentthecouplingelementcanbedetachablycoupled to the distal end of the **guide** needle.

In another alternate embodiment, for each of the first and second front and rear **attachment** strips, the coupling means includes a needle element fixedly coupled at a proximal end to a distal end of the **attachment** strip, and a coupling device for coupling a distal end of the needle element to the distal end of the **guide** needle. The coupling device of this embodiment may further include a first opening at a first end dimensioned to receive therein and **securely** engage the distal end of the needle element and a second opening at a second end dimensioned to receive therein and **securely** engage the distal end of the **guide** needle.

In another embodiment of the surgical kit, the distal end region of the support sheet portion has a recess therein between the first and second rear **attachment** strips, and in yet another embodiment, the proximal end region of the support sheet portion also has a recess therein between the

first and second front **attachment** strips.

In yet another embodiment, the first and second front and rear **attachment** strips extend outwardly from the proximal and distal end regions respectively at an angle of **approximately** 30-60 degrees relative to a midline of the mesh. In yet another embodiment, the first and second rear **attachment** strips extend outwardly from the distal end region at an angle of **approximately** 40 degrees relative to the midline of the mesh, and the first and second front **attachment** strips may extend outwardly from the proximal end region at an angle of **approximately** 60 degrees relative to the midline of the mesh.

In another embodiment, the surgical kit further includes a second **guide**

needle for penetrating tissue within the patient's body to create a passageway through the patient's pelvic region through which the first or second front or rear **attachment** strips can be pulled, the **guide** needle having a proximal end and a tissue penetrating blunt tip at a distal end and defining in part a curved shaft. The curved shaft of the second **guide** needle may have a curvature different than that of the first **guide** needle, and the passageway created by the first **guide** needle may be different than that of the second **guide** needle.

According to yet another embodiment, the organ is the patient's bladder, and the curvature of the first **guide** needle is such it can extend from an exterior of the abdomen, around the pubic bone, and into the **vagina** . In yet another embodiment, the curvature of the second **guide** needle is such that it can extend from an exterior of the abdomen at a **location** caudal and lateral to that of the first **guide** needle, around the side of the bladder, and out into the **vagina** . In yet another embodiment, the curvature of the second **guide** needle forms a compound curve.
In yet another embodiment, for each of the first and second front and rear **attachment** strips, a removable sheath substantially covers the **attachment** strip.

A mesh is also provided for supporting a prolapsed **bladder** , which includes a support sheet portion to be **positioned** substantially beneath the bladder having a distal end region and a proximal end region. The...

...the distal end region has a second recess therein so that, when the mesh is **positioned** within a patient's body, the proximal end region is **positioned** substantially under the bladder with the bladder neck **positioned** substantially within the first recess, and the distal end region is **positioned** under a posterior end of the bladder with the second recess **positioned** above the apex of the **vagina** and/or proximal of the cervix. The mesh also includes first and second front **attachment** strips that extend from the proximal end region at an angle of between **approximately** 30 and 60 degrees relative to a midline of the mesh, and first and second rear **attachment** strips that extend from the distal end region at an angle of between **approximately** 30 ...embodiment, the mesh further includes, for each of the first and second front and rear **attachment** strips, a removable sheath substantially covering the **attachment** strip.
In one embodiment, the first and second front **attachment** strips extend from the proximal end region at an angle of **approximately** 60 degrees relative to the midline, and in yet another embodiment, the first and second rear **attachment** strips also extend from the proximal end region at an angle of **approximately** 40 degrees relative to the midline.

According to another embodiment, the mesh further includes coupNing ...coupled to a distal end of each of the first and second front and rear **attachment** strips. The coupling elements each further have a means for **attaching** to the distal end of a **guide** needle to couple it thereto, and each are dimensioned to pass through a passageway through the patient's body created by the **guide** needle.

A method is also provided for **restoring** a prolapsed organ within a patient's pelvic cavity. The method includes the steps of...

...mesh for supporting the prolapsed organ, the mesh including a support sheet portion to be **positioned** substantially ...organ having a distal end region and a proximal end region. First and second front **attachment** strips extend from the proximal end region of the mesh, and first and second rear **attachment** strips extend from the distal end region of the mesh. The method further includes the steps of, for each of the first and second front and rear **attachment** strips, using the **guide** needle to create a passageway through the patient's body from an exterior of the body and into the patient's **vagina** , coupling the **guide** needle to a distal end of the **attachment** strip using a coupling means, and retracting the **guide** needle and **attached** **attachment** strip through the body through the passageway; adjusting the mesh using ends of the **attachment** strips so that the mesh supports the prolapsed organ; removing a portion of the **attachments** striips that are outside of the body; and leaving the mesh and remaining **attachment** strips within the body.

According to one embodiment, for the first and second front **attachment** strips, the passageway through the patient's body extends from an exterior of the abdomen, around the pubic bone and out of the **vagina** , on first and second sides of the bladder respectively. In yet another embodiment, for the first and second rear **attachment** strips, the passageway through the patient's body extends from an exterior of the abdomen at a **location** caudal and lateral to the **location** of the first and second front **attachment** strips, around the bladder and out through the **vagina** , on first and second sides of the bladder respectively. In an alternate embodiment, for the first and second front **attachment** strips, the passageway through the patient's body extends from an exterior of the medial the obturator bone, and out thought the **vagina** , on first and second sides of the bladder respectively.

In yet another embodiment, a first **guide** needle is used to create the passageway for the first and second front **attachment** strips, and a second **guide** needle is used to create the passageway for the first and second rear **attachment** strips, and the first **guide** needle has a curvature different than the second **guide** I 0 needle.

In another embodiment, for each of the first and second front and rear **attachment** strips, the coupling means is a coupling member fixedly **secured** at one end to a distal end of the **attachment** strip, and having an opening at a second end for receiving therein and **securely** engaging a distal end of the **guide** needle. In an alternate embodiment, for each of the first and second front and rear **attachment** strips, the coupling means comprises a needle element fixedly **attached** at a proximal end to a distal end of the **attachment** strip, and a coupling device for coupling the distal end of the needle element with the distal end of the **guide** needle. The coupling device may further have an opening at a first end for receiving therein and **securely** engaging the distal end of the needle element, and an opening at a second end for

receiving therein and **securely** engaging the distal end of the **guide** needle.

These and other features and advantages of the present invention will become apparent from...a mesh interconnecting the needles;
FIGURES 2b-d are alternate embodiments of the mesh and **connecting** means between the mesh and needle;
FIGURE 3a is an assembly diagram for two needles and a **connector** ;
FIGURES 3b-d are alternate embodiments of a **connector** for use in Fig. 3a; FIGURES 4a-j diagrammatically illustrate several surgical steps of a transabdominal **method** utilizing two needles and **guide** needle according to the invention
to treat SU I;
FIGURES 5a-d illustrate alternate embodiments of coupling the **guide** needle
to the needle;
FIGURES 6a-h diagrammatically illustrate several surgical steps of a transabdominal **method** utilizing a single needle according to an alternate embodiment of
the invention to treat SUI...

...needle to the
mesh;
FIGURES 8a-i diagrammatically illustrate several surgical steps of a transabdominal **method** utilizing two needles and two **guide** needles according to the
invention to treat SUI;
FIGURE 9 is a plan view illustrating one embodiment of a mesh for use in treating pelvic **floor** prolapse;
FIGURE 1 0 is a frontal view of a female illustrating abdominal incision points
according to one method for **placing** the mesh of Figure 9;
FIGURE 1 1 is a side view of a one embodiment of a surgical **guide** needle
for use in placing a mesh for treating pelvic floor prolapse;
FIGURES 12a-12h diagrammatically illustrate several surgical steps in a **method** for placing a mesh for **treating** **pelvic** **floor** prolapse;
FIGURE 13 is a side view of another embodiment of a surgical **guide** needle
that can be used for placing a mesh for treating pelvic **floor** prolapse;
FIGURE 14 is a perspective vieviAlustraiting the mesh of Figuie 9 in **place**
within the body;
FIGURE 15a and 15b are top and side views of one embodiment of a surgical **guide** needle that can be used in **placing** strips of the mesh of Figure 9
through the obturator fossa of a patient;
FIGURE 16 and 17 are a perspective views illustrating a steps in a method for **placing** strips of the mesh of Figure 9 through the obturator fossa; and
FIGURES 18a-1 8d are perspective views illustrating various mesh embodiments in **place** within the body.

DETAILED DESCRIPTION OF THE INVENTION
Before explaining the present invention in detail...practiced or carded out in various ways.

The invention discloses an apparatus and method for **treating** SUL A mesh or tape is passed through pelvic tissue and positioned between the

urethra and **vaginal wall** , creating a supportive sling. The mesh provides a structure means for tissue in growth and...and 2a, in one embodiment the surgical instrument
comprises a needle-like element IO that **attaches** to a mesh 12. Needle element IO defines a certain radius R to perform the surgical **procedure** discussed herein. The distal end of needle element 1 0 terminates at a conical section...wall tissue or blood vessel wall tissue as will be appreciated from the method of **implanting** the mesh as described below.

The proximal end of needle IO terminates in an **attachment** segment 20 that is adapted to mate and **lock** into a handle 21 as disclosed in US patent no.

59899,909.

Disposed between tip...order to follow substantially the profile of the pubis between the vagina and the abdominal **wall** . For the purposes of the method as will be discussed in more detail below, shaft...somewhat rougher surface. A rougher surface WO 03/068107 PCT/US03/04181 meanS7 such as, **screwing** , or other conventional means as is known to those skilled in the art.

@@aiernng to...

...not limited to, autologous, allograft, xenograft, a tissue engineered matrix, or a combination thereof. An **exemplary** synthetic material is PROLENE@ polypropylene mesh, a mesh having a thickness of 0.7 mm and Drug Administration for **implantation** into the human body. A still further embodiment of the mesh 12 is a combination...

...combination of synthetic material 1 1 and natural material 13, whereby the natural material is **placed** over or incorporated within a generally central portion of the synthetic material 1 1. One of mesh 12 so that after installation of mesh 12, natural material 13 is **positioned** below the urethra and eliminates possible erosion issues at the interface of the urethra and mesh. Natural material 13 may be **connected** to the synthetic material 1 1 by means of sewing, a biocompatible glue, cell culturing...

...may be of any convenient shape that suits the intended purpose of the invention. An **exemplary** width is about 1 cm and the length would be dependent upon the size of...2d) to provide additional supporting strength and more surface area on which tissue fibers may **attach** . Moreover, mesh 12 may consist of different types of material, such as a bioabsorbable and...body tissue to allow for future diagnostic visualization.

In one embodiment mesh 12 may be **attached** to needle segment 20 by means of tying, gluing or other suitable **attaching** means. Preferably, a biocompatible heat shrink tube fixes mesh 12 onto needle portion 20, Fig. 2a.
Fig. 3a illustrates a needle 1 0 for use in conjunction with a **guide** needle I IO and coupler 112. **Guide** needle 1 10 may be configured to have a similar radius R
asneedle10. Preferably, **guideneedlel10hasasmallerdiameter** ,about2mm. It is possible, however, for **guide** needle 1 1 0 to have the same diameter as needle 1 0.

A coupler 1 1 2 acts as an interfacing element useful to couple **guide** needle 1 1 0 to needle 1 0. Coupler 1 1 2 is substantially elliptical...

...17 and a second bore opening 1 1 6 for accepting the distal end of **guide** needle I 1 0. Preferably, openings 1 1 6 and 1 14 are configured to allow for a press fit **connection** with needles I 1 0 ...1 6 may comprise a biocompatible glue or high-friction material to facilitate a strong **connection** between the needles 1 0/1 1 0 and coupler 1 12.

Coupler 10 may...

...stainless steel or polyurethane, silicone, rubber or other similar compound.

Figs. 3b-d illustrate alternate **connector** means utilizing a high friction tube 170, such as Tyron. Fig. 3b discloses a tube 10 and the smaller I.D. accepts the **guide** needle 1 1 0. Fig. 3c illustrates a tube 172 having both a varying O.D. and I.D. As the needles are **placed** within the tube the decreasing I.D. compresses around the distal ends of the respective needles and the high coefficient of friction securely **anchors** the needles. Fig. 3d illustrates the needles within the tube 172.

Preferably, the ends of **procedure** for trans-abdominally **implanting** mesh 12 using two needles is shown in Figs. 4a-j. In the figures the relevant parts of the female lower - 15 abdomen are disclosed, the **vagina** being 50, the uterus 52, the urethra 54, the pubic bone 56, the urinary bladder 58 and the abdominal wall 60. A **guide** needle 1 1 0 penetrates the abdominal wall 60, anterior to the pubic L"Crie the anterior wall of the **vagina** 50.

Coupler 1 12 **attaches** to the distal end of **guide** needle 1 1 0. extending out from the body, and needle 1 Oa, Fig. 4b. One end of mesh 12 is **attached** to the proximal end of needle 1 Oa. The surgeon then retracts **guide** needle 1 1 0 back through the abdomen and advances needle 1 Oa through the **vaginal** incision following the same path **guide** needle 1 1 0 created, Fig. 4c. The needles pass through the vaginal **wall** and through the soft tissue on one side of the urethra 54, ...pulls needle 1 Oa out of the body through the abdominal wall 60, Fig. 4e.

Guide needle 1 1 0 is disconnected from needle 1 Oa, and the surgeon repeats the same **procedure** , but passing the **guide** needle 1 1 0 on the opposite side of the urethra 54, Figs. 4f- j, to complete the implantation of the mesh between the midurethra and **vaginal wall** using needle 1 Ob.

Figs. 8a-i illustrate an alternate preferred embodiment. A first **guide** needle 1 1 Oa penetrates the abdominal wall 60, anterior to the pubic bone 56...

...exits the body through an incision having been made in the anterior wall of the **vagina** 50. A second **guide** needle 1 1 Ob penetrates the abdominal wall 60, anterior to the pubic bone 56 of the pubic bone 56 to the opposite side of the urethra 54 as **guide** needle 1 1 Oa and exits the body through an incision having been made in the anterior wall of the **vagina** 50, Fig. 8a. At this point, the surgeon may perform a single cystoscopy to confirm the integrity of the bladder 58.

Couplers 112a,b **attach** to the distal ends of needles 10a,b. Needle 10a, having one end of mesh 12 **attached** to the proximal end of needle 1 Oa **attaches** to **guide** - 16 needle 1 10a via coupler 112a, Fig. 8b. The surgeon then retracts **guide** needle 1 1 Oa back through the abdomen and advances needle 1 Oa through the **vaginal** incislon foilowing the same

path **guide** needle 1 1 Oa created. The needles pass through the vaginal **wall** and through the soft tissue on one side of the urethra 54, the needles being...of the body through the abdominal wall 60, Fig. 8e.

The surgeon repeats the same **procedure** , but removing **guide** needle 1 10b
and advancing needle 1 Ob on the opposite side of the urethra 54, to complete the implantation of the mesh between the mid-urethra and **vaginal wall** using needle 10b, Figs. 8f-i.

Figs. 5a-d illustrate alternate embodiments for coupling needle 1 0 to **guide** needle 1 1 0 to **implant** a mesh 12 trans-abdominally as indicated above. In Figs. 1 5 5a-b, the a bore opening 1 1 8 to allow for a press fit **connection** with the distal end of **guide** needle 1 1 0. Alternatively, bore-opening 1 1 8 may comprise other **connection** means, such as glue or a highfriction material.

In Fig. 5c, the distal end of needle 10 is modified to include a bore opening 120 and a **locking** pin'122. **Guide** needle 1 10 is modified to include an L-shaped groove 124. The distal end of **guide** needle 1 1 0 **inserts** into opening 120 and groove 124 engages **locking** pin 122 and **locks** thereto with a quarter-turn twist. Fig.

5d illustrates a bore opening 126 in **guide** needle 1 1 0 to accept a protruding element 128 at the distal end needle...

...needle 1 0 can be used for either a trans-abdominal approach or a trans-**vaginal** approach. In this approach, a kit comprising two needles 1 0, **attached** to a mesh 12, at least one coupler and at least one **guide** needle may be distributed for use by multiple surgeon specialists. For example, a gynecologist may prefer the trans- **vaginal** - 17 approach and will simply discard the **connector** and **guide** needle from the kit. On the other hand, a urologist may prefer the trans-abdominal approach and utilize the **connector** (s) and **guide** needleks).

Referring now to Figs. 6a-h, an alternate embodiment of the invention utilizes the...

...to the mesh 12. In this embodiment, the mesh 12 is modified to create a **connection** means for **connecting** to the distal end of the needle 1 0. The **connection** means is preferably detachable so that when the mesh is pulled out of the abdominal...

...at least in part, of natural materials, which are otherwise not suitable in the pre- **affixed** embodiment due to the inability of the natural material to survive extended periods in inventory...exits the body through an incision having been made in the anterior wall of the **vagina** 50, Fig. 6b. A first end of mesh 12 **attaches** to the distal end of needle 1 0 via coupling means. The surgeon then retracts the needle, Fig. 4c.

The needle 10 and mesh 12 pass through the vaginal **wall** and through the soft tissue on one side of the urethra 54. The needle and...

...Needle 1 0 disconnects from the first mesh end, and the surgeon repeats the same **procedure** , but this time passes the needle 1 0 on the opposite side of the urethra...6d-h, to complete the implantation of the mesh 12 between the mid urethra and **vaginal wall** .

Referring to Figs. 7a-g, alternate embodiments for **connecting** the

needle 1 0 to the mesh 12 are disclosed. Figs. 7a-b disclose a for engaging groove 120. Mesh 12 is preferably **attached** to the distal end 132 using a biocompatible glue or other
appropriate mechanical **fastening** means. The surgeon may simply **attach** or
detach needle 1 0 from coupler 130 by depressing spring tabs 136 and 138 ...

...130.

Fingers 140 and 142 engage groove 120 to hold needle 1 0 firmly in **place** within coupler 130.

Figs. 7c-e illustrate a coupling mechanism 150 similar in function to... distal end 17 of needle 10.

Figs. 7f-g illustrate a loop coupling mechanism 160 **attached** to mesh 12 for engaging groove 120.

As would be appreciated by one skilled in the art, there exist multiple means for detachably **connecting** the mesh to the needle.

Since all procedures may be performed using a local anesthesia, the patient is able to provide feedback to the surgeon after mesh 12 is in **place** . Typically, the urinary bladder 58 is filled with a fluid, such as water, using a...The surgeon is able to determine the operation of the urethra and may adjust the **placement** of the mesh 12, as necessary, by adjusting the ends of mesh 12 **located** at the outside of the abdomen 60, Figs. 4h and 5h. After adjustments, the surplus mesh at the abdomen is cut off, and the ends of the mesh are **secured** within the abdomen and the abdomen is closed.

Likewise, the incision at the vaginal **wall** is closed whereby the tissue flap seals the mesh between the urethra 54 and the wall of **vagina** 50.

- 19 Mesh 12 is left in the body and forms an artificial ligament **attached** to the abdominal wall that provides the support for the urethra as required in order...

...the patient.

Referring now to Figures 9-18, surgical devices and methods for pelvic floor **repair procedures** will now be described in detail. According to one embodiment for **cystocele** repair, a mesh 200, illustrated in Fig. 9, is provided having a support sheet portion two front **attachment** strips 208, and two rear **attachment** strips 21 0 for **attaching** the mesh within the pelvic cavity as will be described in more detail below. The support sheet portion 202, when **positioned** within the body as shown in Fig. 14, is **positioned** beneath the bladder 58 and has a length L such that the distal end region...

...is under the distal end of the bladder and the proximal end region 206 is **positioned** below and distal of the bladder neck 249. In the illustrated embodiment, the mesh 200 end region to ensure clearance from the uterus 52 and/or **vaginal** apex 247 when a hysterectomy has been preformed, and a second recess 214 at the...

...249.

In a preferred embodiment, the length L of the support sheet portion 202

is **approximately** 3 inches to 6 inches, preferable 3-4 inches, and the width W is **approximately** 1 inch to 2 inches, with the first and second recesses having depths d 1 9 d2 of **approximately3** /4-1 Y2 inches and Y2to 1 inch respectively. Each of the rear and front **attachment** strips project outwardly from the corners of the support sheet portion at angles Al and...

...line M-M of the mesh. In the embodiment of Fig. 9, angle Al is **approximately** 40 degrees and A2 is **approximately** 60 degrees, however, angles of **approximately** 30-60 degrees are acceptable. The lengths 12 of the front and rear **attachment** strips 208, 210 are preferable about 16 inches and have a width w2 of **approximately** Y2to 1 inch.

The mesh may be of any suitable biocompatible natural and/or synthetic... Ethicon, Inc., or may be any combination of non-absorbable and absorbable biocompatible material.

The **attachment** strips may be covered by individual slideably removable sheaths 216 that are held in **place** by **secure** **attachment** either the to the ends of the strips, or to a coupling mechanism that is **affixed** at the distal end of the strip and will be described in more detail below ...

...barrier, 1 5 which prevents contamination of the mesh as it is passed through the **vaginal** canal.

It also provides for a reduced frictional surface as compared to the mesh to allow the **attachment** strip to be pulled through the tissue without significant drag, which could result in the...

...stabilization of the structural integrity of the mesh in the width and diagonal directions. Following **insertion** of the **attachment** strips, the sheaths can be removed as will be described further below.

The present invention further includes other surgical devices that enable the mesh described above to be **implanted** via an "outside in" approach (i.e., from an abdominal approach) rather than a **vaginal** or "inside out" approach. One or more surgical **guide** needles are provided to facilitate the outside in approach and to enable the surgeon to pass the mesh **attachment** strips through the body quickly and in a manner that will safely avoid vital organs and nerves within the pelvic cavity. The configuration of the **guide** needle(s) may vary according to the points of **attachment** of the mesh **attachment** strips, which will dictate the path through the body.

- 21 According to a first embodiment of the invention, the mesh described above is used to repair a **cystocele** , and is **placed** to support the bladder with the front **attachment** strips 208 passing over the superior edge' OT the pubic bone and **secured** within the abdominal rectus muscle at first and second positions 250, 252, and the rear **attachment** strips 21 0 passing laterally on either side of the bladder and upwardly to the ...

...fourth points 254, 256 that are lateral and caudal relative to that of the front **attachment** strips as shown in Fig. 1 0.

One method for **placing** this mesh includes using surgical **guides** that enter the body through the abdomen, pass through the abdominal rectus muscle, behind the pubic bone, and exit through a **vaginal** incision where they can be coupled with the front **attachment** strips to retract or pull the strips back through the channel created by the **guide**

needles for **securing** the end of the front **attachment** strips in the abdominal rectus muscle. Initially, the patient is placed in the lithotomy position...

...made followed by dissection of the pubocervical fascial in a manner similar to traditional cystocele **repair procedures** .

Next, two small puncture wounds are made that penetrate the abdominal wall, anterior to the pubic bone, one on each side of the midline, just above the synphysis, **approximately** 4 cm to 7 cm apart (see 250, 252 in Fig. 1 0).

Subsequently, a surgical **guide** needle is passed from the first of the abdominal incisions 250 **approximately** following the curvature of the back of the pubic bone and exits from the anterior vaginal **wall** incision. See Fig. 12a. The pathway through the body is substantially similar to that shown in Figs. 4a-4j above for **placing** a urethral sling.

One embodiment of a **guide** needle 300 that may be used to create this ...handle 302 and a shaft 304. The handle can have any suitable configuration that enables **secured** gripping of the device, and can be made of any suitable material such as plastic...

...the entire length of the path from the abdominal incision and out - 22 through the **vaginal** incision. The curvature of the needle is substantially identical to the path of the **guide** illustrated in Fig. 12a so that passage of the needle through ihe body creates the desired path. The **guide** needle has a blunt, non-cutting. distal tip 306 that facilitates blunt dissection through the tissues.

Once the **guide** needle tip extents through the **vaginal** incision (Fig. 12a), the **guide** needle is **secured** to the end of one of the front **attachment** strips (Fig. 12b) so that it may be pulled or retracted back through the path created by the **guide** needle (Fig. 12c). According to one embodiment, the mesh **attachment** strips each have a coupling mechanism **attached** to their distal ends. This coupling device may ... the coupling mechanism 320 is a polypropylene tube that is heat welded or otherwise adequately **secured** or bonded at a first end 322 to the distal end of the **attachment** strip. The tube has a recess or opening 324 in its second end 326 configured and dimensioned to receive therein the distal tip of the **guide** needle. Via the opening 324, the coupling device is press fit onto the distal end of the **guide** needle to **secure** it thereto.

Once the **guide** needle is **secured** to the first front **attachment** strip, the **guide** needle is retracted back through the body bringing the front **attachment** strip with it so that it now extends out through the abdominal incision (Fig. 12c...

...of the bladder and using the second abdominal incision 252 to pass the second front **attachment** strip out through the second abdominal incision (see Fig. 12d).

To **place** the rear **attachment** strips within the abdominal rectus muscle a
similar procedure is used as in the **placement** of the front **attachment** strips. Third and ...layer of the abdominal rectus muscle. These two incisions, as shown in Fig 10, are **located approximately** 6 cm to 8 cm caudal to the superior ridge of the pubic synphysis, and...

...on each side of the midline of the synphysis. For this passage of the rear **attachment** strips, it is useful to select a **guide** that contains a compound curve, similar to that illustrated in greater detail in Fig 13. The shaft 350 of the - 23 **guide** needle 352 contains a ...plane than the first curve, with a radius R2. A third curved portion 360 is **located** at the proximal end 362 of the shaft with a radius R3. The length of...curve allows for a change of direction of the blunt, cutting tip 366 of the **guide** needle as is passes from the incision through the fascia and pelvic cavity and out of the anterior vaginal **wall** incision into the lumen of the **vagina** . The serpentine like route enables the **guide** to avoid vital organs and vessels within the pelvic cavity. In the illustrated embodiment, the length 370 of the first curved portion is **approximately** 8.9 inches and radius R1 is **approximately** 2.25 inches; the length 372 of the second curved portion is **approximately** 3.5 inches and radius R2 is **approximately** 2.0 inches; and the length 374 of the third curved portion is **approximately** 1.88 inches and radius R3 is **approximately** 2.0 inches.

To **place** the rear **attachment** strips, the surgeon inserts a finger into the distal portion of the anterior wall incision of the **vagina** . The bladder is **located** and palpated. A blunt dissection is made through the pubocervical fascia on one side of...

...bladder and the finger is directed up towards the abdominal incision on that side. The **guide** needle is then **inserted** into the incision on that side. The inside curvature of the distal portion of the **guide** needle is **positioned** to face the midline of the synphysis. The blunt tip of the **guide** needle is then advanced as the surgeon palpates the tip with the finger and aligns the **guide** needle to pass around any vital organs or vessels. At this point the tip of the **guide** needle is passed through the remaining fascial tissue between it and the surgeons finger, and...

...transition between the first and second curvatures is reached in the abdominal rectus muscle. The **guide** needle is then rotated to align the tip with the channel of the **vaginal** lumen, and advanced along the direction of the second curvature. Once the **guide** needle tip extents at or - 24 near the introitus of the **vagina** (see Fig. 12e), the **guide** needle is **secured** to the end of one of the rear **attachment** strips so that it may be p01E1-4 -- -'tracted back through the path created by the **guide** needle 7.nu out through the wdi a i abdominal incision (see Figs. 12f-12g using the fourth abdominal incision 256 to pass the second rear **attachment** strip out through that incision (Fig. 12h).

This abdominal passage and **attachment** procedure can also accomplished with the aid of a laparoscope. The laparoscope is **inserted** tniough an incision in the umbilical area and directed towards the caudal incision. With this technique the passage of the tip of the **guide** can be visualized as it passes through the pelvic cavity and into the anterior **vaginal** **wall** incision.

Once all four of the **attachment** strips have been **place** ,, are removed from the strips. The sv -nesh structure is under ...sheaths covering thf:; ,
one at a time and the supporting mesh is held fast in **place** uy ine trictional forces between the surrounding tissue and the **attachment** strips. The excess material is cut from the abdominal ends of the **attachment** strips and the ends are le-a c-L @b cutis. The abdominal

incision can be **sutured** or closed with a skin closui . L.:@"r
ask,ve
such as DERIVIABOND TM I typical **technique** .

Repair of a prolapse can also include passage of the **guides** and mesh front **attachment** strips through the obturator fossa or any other fossa in the pelvic bone. The use of the **guides** is enhanced by incorporation of a corr.@ .. . in the shaft. An example of a **guide** needle with a compound curved silati useful for **placing** a mesh **attachment** strip through the obturatcr ltfossr@ t3thown in Figs. 15a and 15b. The **guide** needle 450 has a handle 452 and a shaft 454. The shaft has a first...the first curve is to set the path of the - 25 tip 464 of the **guide** needle as it passes from the external surface of the obturator fossa 500 around the obturator bone 502, into the incision on the anterior vaginal **wall** 504 (Fig. 16). The tip of the **guide** then extends into and out of the vaglinai introitus. Fig. 16 shows the **position** of the **guide** needle 450 within the body just prior to coupling of the **attachment** strip to the **guide** . The **guide** needle is then **secured** to the end of one of the front **attachment** strips as described above, or alternatively, as shown in Fig. 17, to the distal end of a second needle 475 that itself is coupled to the **attachment** strip. This alternate **attachment** method using a second needle is similar to that described above in conjunction with Figs. 4a-4j, and could also be alternatively used when **placing** mesh **attachment** strips via any pathway described herein. The **attachment** strips can then be pulled or retracted back through the path created by the **guide** needle and out through the first obturator ...s body.
The procedures and devices described in detail above can also be use to **implant** various other mesh configurations for pelvic prolapse repair, such as those illustrated in Figures 18a...

...a rear end 705. The front end and rear end of each strip may be **placed** as described above in conjunction with the front and rear **attachment** strips respectively of the mesh ...alternative, the rear ends could be attached within the pelvic cavity, such as to the **sacrospinous ligament** or the iliococcygeous muscle. Preferably, the strips are **positioned** under the lateral aspects of the bladder, as shown in Fig. 18a.

- 26 In another...

...extending between ihe first and second strips. The first mesh crossing strip 714 is preferably **positioned** just distal of the urethra at the bladder neck, and the second crossing strip 716 **positioned** just proximal of the posterior aspect of the bladder. In an alternate embodiment shown in...

...18c, first and second ends 721, 722 of the first primary mesh strip 720 are **placed** in a manner similar to the first and second front **attachment** strips of the mesh of Fig. 91 whereas first and second ends 724, 725 of the second primary mesh strip 726 are **placed** in a manner similar to the first and second rear **attachment** strips of that mesh. Thus, the first primary mesh strip will lie just distal of...of the bladder. First ends 733, 735 of the first and second strips can be **placed** in the same manner as the front **attachment** strips of the mesh of Fig. 9, whereas the second ends 734, 736 can be **placed** in the same manner as the rear **attachment** strips of that mesh.

Although several embodiments of a mesh for pelvic **floor** prolapse repair

have been described, those skilled in the art will recognize that various other...

Claim

... a mesh for supporting the organ, the mesh including a support sheet portion to be **positioned** substantially beneath the organ having a distal end region and a proximal end region, first and second front **attachment** strips extending from the proximal end region, and first and second rear **attachment**
strips extending from the distal end region;
a first **guide** needle for penetrating tissue within the patient's body to
create a passageway through the patient' s pelvic region through which the first or second front or rear **attachment** strips can be pulled, the **guide** needle having a proximal end and a tissue penetrating blunt tip at a distal end...

...for coupling a distal end of each of the first and second front and rear **attachment** strips to the distal end of the **guide** needle.

2 The surgical kit according to claim 1, wherein, for each of the first and second front and rear **attachment** strips, the coupling means is a coupling element fixedly **secured** at a first end to a distal end of the **attachment** strips, and having an opening at a second end dimensioned to receive therein and **securely** engage the distal end of the **guide** needle.

3 The surgical kit according to claim 1, wherein the coupling element can be detachably coupled to the distal end of the **guide** needle.

4 The surgical kit according to claim 1, wherein, for each of the first and second front and rear **attachment** strips, the coupling means comprises a needle element fixedly coupled at a proximal end to a distal end of the **attachment** strip, and a coupling device for coupling a distal end of the needle element to the distal end of the **guide** nep(ilp. The surgical kit according to claim 4, wherein the coupling device has a first opening at a first end dimensioned to receive therein and **securely** engage the distal Pnd of the needle element and a second opening at a second end dimensioned to receive therein and **securely** engage the distal c!-,d of the **guide** needle.

6 The surgical kit according to claim 1 , wherein the distal end region of the support sheet portion has a recess therein between the first and second rear **attachment** strips.
7 The surgical kit according to claim 6, wherein the proximal end region of the support sheet portion has a recess therein between the first and second front **attachment** strips.

8 The surgical kit according to claim I , wherein the first and second front and rear **attachment** strips extend outwardly from the proximal and distal end regions respectively at an angle of **approximately** 30-60 degrees relative to a midline of the mesh.

9 The surgical kit according to claim 8, wherein the first and second rear **attachment** strips extend outwardly from the distal end region at an angle of **approximately** 40 degrees relative to the midline of the mesh.

10 The surgical kit according to claim 9, wherein the first and second

front **attachment** strips extend outwardly from the proximal end region at an angle of **approximately** 60 degrees relative to the midline of the mesh.

11 The surgical kit according to claim 1 , further comprising a second **guide** needle for penetrating tissue within the patient's body to create a passageway through the patient's pelvic region through which the first or second front or rear **attachment** strips can be pulled, the **guide** needle having a proximal end and a tissue penetrating blunt tip at a distal end...

...The surgical kit according to claim 1 1, wherein the curved shaft of the second **guide** needle has a curvature different than that of the first **guide** needle, and wherein the passageway created by the first **guide** needle is different than that Cf the second **guide** needle.

13 The surgical kit according to claim 12, wherein the organ is the patient's bladder, and wherein the curvature of the first **guide** needle ...can extend from an exterior of the abdomen, around the pubic bone, and into the **vagina** .

14 The surgical kit according to claim 13, wherein the curvature of the second **guide** needle is such that it can extend from an exterior of the abdomen at a **location** caudal and lateral to that of the first **guide** needle, around the side of the bladder, and out into the **vagina** .

15 The surgical kit according to claim 14, wherein the curvature of the second **guide** needle forms a compound curve.
16 The surgical kit according to claim 1 , further comprising, for each of the
first and second front and rear **attachment** strips, a removable sheath substantially covering the **attachment** strip.

17 A mesh for supporting a prolapsed **bladder** comprising:
a support sheet portion to be **positioned** substantially beneath the bladder having a distal end region and a proximal end region, the...

...the distal end region having a second recess therein so that, when the mesh is **positioned** within a patient's body, the proximal end region is **positioned** substantially under the bladder with the bladder neck **positioned** substantially within the first recess, and the distal end region is
positioned under a posterior end of the bladder with the second recess **positioned** above the apex of the **vagina** and/or proximal of the cervix;
midline.

18 The mesh according to claim 17, further comprising, for each of the first and second front and rear **attachment** strips, a removable sheath substantially covering the **attachment** strip.
19 The mesh according to claim 17, wherein the first and second front **attachment** strips extend from the proximal end region at an angle of **approximately** 60 degrees relative to the midline.

20 The mesh according to claim 19, wherein the first and second rear **attachment** strips extend from the proximal end region at an angle of **approximately** 40 degrees relative to the midline.

21 The mesh according to claim 17, further comprising...

...coupled to a distal end of each of the first and second front and rear **attachment** strips, the coupling elements each further having a means for **attaching** to the distal end of a **guide** needle to couple it thereto, and each being dimensioned to pass through a passageway through the patient's body created by the **guide** needle.

22 A method for **restoring** a prolapsed organ within a patient's pelvic cavity
comprising the steps of:
providing a mesh for supporting the prolapsed organ, the mesh including a support sheet portion to be **positioned** substantially beneath the organ having a distal end region and a proximal end region, first and second front **attachment** . The method according to claim 22, wherein, for the first and second front **attachment** strips, the passageway through the patient's body extends from an exterior of the abdomen, around the pubic bone and out of the **vagina** , on first and second sides of the bladder respectively.

24 The method according to claim 23, wherein, for the first and second rear **attachment** strips, the passageway through the patient's body extends from an exterior of the abdomen at a **location** caudal and lateral to the **location** of the first and second front **attachment** strips, around the bladder and out through the **vagina** , on first and second sides of the bladder respectively.

25 The method according to claim 23, wherein, for the first and second front **attachment** strips, the passageway through the patient's body extends from an exterior of the medialaround the obturator bone, and out thought the **vagina** , on first and second sides of the bladder respectively.

26 The method according to claim 22, wherein a first **guide** needle is used to create the passageway for the first and second front **attachment** strips, and as second **guide** needle is used to create the passageway for the first and second
. The method according to claim 22, wherein, for each of the first and -zleconcl front and rear **attachment** strips, the coupling means is a coupling member fixedly **secured** at one end to a distal end of the **attachment** strip, and having an opening at a second end for receiving therein and **securely** engaging a distal end of the **guide** needle.

28 The method according to claim 22, wherein, for each of the first and second front and rear **attachment** strips, the coupling means comprises a needle element fixedly **attached** at a proximal end to a distal end of the **attachment** strip, and a coupling device for coupling the distal end of the needle element with the distal end of the **guide** needle.

29 The method according to claim 28, wherein the coupling device has an opening at a first end for receiving therein and **securely** engaging the distal end of the needle element, and an opening at a second end for receiving therein and **securely** engaging the distal end of the **guide** needle.

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00820891 **Image available**
FORCEPS USEFUL FOR INTRABODY GUIDING AND/OR POSITIONING OF A MEDICAL INSTRUMENT
PINCE UTILISEE POUR LE GUIDAGE ET/OU LE POSITIONNEMENT D'UN INSTRUMENT MEDICAL A L'INTERIEUR DU CORPS
Patent Applicant/Assignee:
RON-TECH MEDICAL LTD, Yad Harutzim Street 4, 44641 Kfar Saba, IL, IL (Residence), IL (Nationality), (For all designated states except: US)
Patent Applicant/Inventor:
TEPPER Ronnie, Hamatmid Street 3, 46407 Herzlia, IL, IL (Residence), IL (Nationality), (Designated only for: US)
Legal Representative:
G E EHRLICH (1995) LTD (agent), Bezalel Street 28, 52521 Ramat Gan, IL,
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Detailed Description
Claims

English Abstract
...portion (12) and a second grasping portion (13); wherein the first pivot portion (8) is **attached** to the second pivot portion (12) so as to form a pivot point (15) about...

...second arms (6 and 10) co-rotate in a scissor-like motion from a grasping **position** to an open **position** and vice versa, whereas the first and the second finger holding portions (7 and 11) are **positioned** on one side of a plane defined by a length of the first arm (6...

French Abstract
...une deuxieme partie pivot et une deuxieme partie de saisie. La premiere partie pivot est **attachee** a la deuxieme partie pivot de maniere a former un point de pivot autour duquel peuvent pivoter

conjointement les premier et deuxieme bras, a la maniere des ciseaux, depuis une **position** de prise jusqu'a une **position** ouverte et dans le sens inverse. Les premiere et deuxieme parties pour le doigt sont **placees** sur un cote dans un plan defini par une longueur du premier bras, ledit plan...

Detailed Description

... relates to forceps which are asymmetric along the length thereof and as such can be **attached** to various medical instruments so as to enable positioning and/or **anchoring** of said instruments within the body. More particularly, the present invention relates to a forceps which is **attachable** to an endovaginal ultrasound i o transducer and which is utilizable for positioning and/or **anchoring** said ultrasound transducer against the cervix.

The use of manipulative instruments in the course of examination of a patient, or in the course of a **surgical procedure** , are well known in the art.

Various forceps and retention devices have been developed which...

...also serve as uterine cervical holders and as such are conformed or adapted for intra- **vaginal** use. Such cervical holders can be utilized, for example, to **position** endovaginal ultrasound transducers against the uterine cervix so as to enable monitoring obstetric and gynecological...

...an apparatus which includes a cervical holder for holding the patient's cervix and an **attached connector** for interconnecting an ultrasound transducer to the cervical holder. The apparatus described in WO 99/03399 can be used to **guide** and monitor, in real time, intra uterine, cervical and tubal **procedures** such as, for example, **curettage** or evacuation of the uterine cavity for diagnostic and/or therapeutic purposes, and the like...

...apparatus described in Since the finger holding portions (arrow Q of the cervical holder are **positioned** such that the transducer cannot be **positioned** directly over the cervical holder, shifting of the transducer to the side of the cervical holder is necessary. This severely limits the accuracy with which the transducer assembly is **positioned** since such an assembly is oftentimes **placed** blindly and off-line, and as such a physician relies on the cervical holder to **guide** the transducer to the desired **position** . Thus, when the cervical holder and the transducer are not in the same plane, the...for, and it would be highly advantageous to have, forceps which can be used to **guide** and **anchor** in **position** an intrabody medical instrument such as endovaginal ultrasound transducer devoid of the above limitations.

SUNEVIARY...

...a second pivot portion and a second grasping portion; wherein the first pivot portion is **attached** to the second pivot portion so as to forrn a pivot point about which the first and the second arms co-rotate in a scissor-like motion from a grasping **position** to an open **position** and wise versa, whereas the first and

the second finger holding portions are **positioned** on one side of a plane
defined by a length of the first ann, the...

...procedures, the apparatus comprising an assembly, including (a) an endovaginal ultrasound transducer being adapted for **insertion** into a portion of a patient's **vagina** so as to be **positionable** against a cervix of the patient; (b) a forceps including (i) a first arm including ...

...a second pivot portion and a second grasping portion; wherein the first pivot portion is **attached** to the second pivot portion so as to form a pivot point about which the first and the second arms co-rotate in a scissor-like motion from a grasping **position** to an open **position** and wise versa, whereas the first and the second finger holding portions are **positioned** on one side of a plane defined by a length of the first arm, the plane is perpendicular to the scissor-like motion; and (c) a **connector** for interconnecting the ultrasound transducer and the forceps, the **connector** being constructed so as to enable counter resisted movement of the ultrasound transducer relative to...

...cervical and tubal procedures, the system
comprising (a) an endovaginal ultrasound transducer being adapted. for **insertion** into a portion of a patient's **vagina** ; (b) a forceps including (i) a first arm including a first finger holding portion, a and a second grasping portion;
wherein the first pivot portion is **attached** to the second pivot portion so as to form a pivot point about which the first and the second anns co-rotate in a scissor-like motion from a grasping **position** to an open **position** and wise
versa, whereas the first and the second finger holding portions are **positioned** on one side of a plane defined by a length of the first arm, the
plane is perpendicular to the scissor-like motion; (c) a **connector** for interconnecting the ultrasound transducer and the forceps, the **connector**

being constructed so as to enable counter resisted movement of the ultrasound transducer relative to...

...and the pivot point.

According to still further features in the described preferred embodiments the **connector** includes (i) a forceps portion being **attachable** io to the forceps; and (ii) an ultrasound holder portion being **attachable** to the
forceps portion, the ultrasound holder portion including a body and an ultrasound acceptor being for holding the ultrasound transducer, the acceptor is **connected** to the body in a manner so as to allow counter resisted movement of the...

...in the described preferred
embodiments the ultrasound holder portion further includes an ultrasound adapter element **positioned** within the acceptor for firmly holding the ultrasound transducer within the acceptor.
According to still further features in the described preferred embodiments the ultrasound holder portion of the **connector** is constructed so as to detach from the forceps portion upon an application of a...

...According to still further features in the described preferred

embodiments the forceps includes an element **attached** to, or integrally formed with the first arm, the element being for engaging the forceps portion of the **connector** .

According to still further features in the described preferred embodiments the device includes an extension coaxially **connected** at a distal end of the endovaginal ultrasound transducer thereby facilitating visual alignment of the...

...features in the described preferred
embodiments the device includes at least one light beam generator **connected** either to the **connector** , to the ultrasound transducer or to the forceps, the light beam generator being for generating...

...to still further features in the described preferred
embodiments the device is an imaging device **connected** to the endovaginal
ultrasound transducer, the imaging device being for generating an image of
the...

...two electromagnetic field
generators for generating electromagnetic fields, one of the electromagnetic
field generator is **connected** either to the **connector** , to the ultrasound
transducer or to the forceps, whereas the other electromagnetic field generator is **connected** to the medical instrument, the device further includes at least one electromagnetic field sensor of a predetermined **position** , such that by analyzing magnetic fields perceived by the at least one electromagnetic sensor, spatial information of the relative **locations** of
the electromagnetic field generators and therefore of the endovaginal ultrasound transducer and the medical providing a forceps -utilizable in positioning and/or **anchoring** of a medical device or instrument **attached**
thereto, such as, for example, an intra- **vaginal** ultrasound transducer.
io BREEFDESCRIPTTONOFTHEDRAWINGS
The invention is herein described, by way of example only, with...

...positioning of a medical instrument or device. Specifically, the present invention can be used to **position** an intra- **vaginal** ultrasound transducer. Using appropriate imaging software and hardware, an ultrasound transducer according to the present...such as a needle, or a swab which are used during the course of
a **medical procedure** . As such, the terni forceps also refers. to **clamps** ,
tenacula, swab holders or any other medical instrument of this type which io include a...

...serrated grasping surfaces.

As further used herein, the terms "proximal" and "proximally" refer to the **position** of grasping portions of a forceps, while the terms "distal" and "distally" refer to a **position** of finger holding portions of the forceps of the present invention.

Referring now to the...
...seizing a body
tissue, a medical implement or a swab.

First pivot portion 8 is **attached** via a **screw** , a pin or the like, as is
indicated by 14, to second pivot portion 12...

...which arms 6 and 10 co-rotate in a scissor-like motion from a grasping **position** to a non-grasping (open) **position** , and vice versa. Thus, in order to open forceps 5, finger holding portions 7 and 11 are pulled apart
and vice a versa. When forceps 5 is in a grasping **position** , grasping portions 9 and 13 are biased one against the other so as to fon-n a **clamping** or grasping area 18 which can be used to **clamp** forceps 5 to a tissue.

In addition, when forceps 5 is in its grasping **position** , finger holding portions 7 and 11 are **positioned** on one side of a plane (indicated by 16),
which plane is defined by the or device.

Forceps 5 also preferably includes a **locking** element 17 which interlocks an-ns 6 and 10 when forceps 5 is in its grasping **position** .

To achieve an asymmetric configuration wherein both finger holding portions 7 and 11 are **positioned** on one side of plane 16, arm 10 is preferably formed with an angle (indicated...

...6 follows plane 16. This configuration allows finger holding portions 7 and H to be **positioned** one above the other and yet allows both to be **positioned** on one side of plane 16.

Alternatively, the portion spanning from finger holding portion 1...

...this case, arm 10 also follows plane 16 but finger holding portion 1 1 is **positioned** proximally to finger holding portion 7, thus creating a staggered configuration for finger holding portions...

...positioning of a medical instrument or a device, which can be, for example, an intra- **vaginal** ultrasound transducer.

Thus, according to a preferred embodiment of the present invention and as specifically...
...8 forceps 5 forms a part of an
apparatus 20 which further includes an intra- **vaginal** ultrasound transducer
and which is utilizable for guiding and monitoring an intra-uterine procedure. Such...

...endometrial cavity; (vi) embryo transfer into the fallopian tube; (vii) fallopian tube canullation; (viii) ultrasound **guided** fetal reduction; (ix) simultaneous **insertion** of an image transmitting device such
as endoscopy equipment into the uterine cavity for complementary...

...fetal tissue sampling (xiv) feticid and (xv) hydrosonography with saline or contrast agents.

To enable **attachment** of forceps 5 to an ultrasound transducer to thereby fonn apparatus 20, forceps 5 preferably includes an element 19 **attached** to, or integrally formed with arm 6. Element 19 serves for engaging forceps 5 via a **connector** to a medical instrument, such as an

intra- **vaginal** ultrasound transducer. Any configuration of element 19 which can be utilized for **attachment** of a medical instrument can be utilized by the present invention.
For example, and as...

...a thickening and/or a rough
surface so as to enable tight engagement with a **connector** of a medical instrument. Alternatively, and as specifically shown in Figures 2b-c element 19 can include a serrated edge 23 which serves for engaging a **connector** of a medical instrument in a **position** specific manner.

Figure 3-8 depict a **connector** 21 useful for **attaching** forceps 5 to a medical instrument such as an intra- **vaginal** ultrasound transducer.

As specifically shown in Figure 3, and according to a preferred embodiment of the present invention, **connector** 21 includes a forceps holder portion 22 which is **attachable** to forceps 5. Alternatively, portion
io 22 can be integrally formed with arm 6 of forceps 5. According to one configuration, forceps portion 22 is **attached** to forceps 5 via a groove 26.

Groove 26 tightly engages element 19 via **screws** 24 which thread through forceps portion 22 and contact ann 6 of forceps 5. In this configuration, forceps portion 22 is reversibly **attachable** to element 19 of forceps 5. **Connector** 21 also includes an ultrasound holder portion 30 which **attaches** to forceps portion 22. This **attachment** can be provided by **clamping** or sliding a U-shaped clasp 33 over grooves 37 provided on forceps portion 22...

...of the present invention,
ultrasound holder portion 30 further includes an ultrasound adapter element 35 **positioned** within acceptor 34 for firmly holding ultrasound transducer 39 within acceptor 34. It will be...

...are fabricated out of autoclavable materials.

According to a preferred embodiment of the present invention **connector** 21 is constructed so as to enable counter resisted movement of
ultrasound transducer 39 relative...

...Figure 3 and according to a preferred
embodiment of the present invention, acceptor 34 is **connected** to body 32
io in a manner so as to allow counter resisted movement of...
...32 along a longitudinal axis of body 32 and
therefore along a longitudinal axis of **connector** 21. To counter resist this
movement, ultrasound holder portion 30 is provided with a spring element 40 **positioned** within slot 38. Spring element 40 is retained within slot 38
via a stoppage 42...is
forced against a cervical or endovaginal tissue region of the patient. As described above, **connector** 21 is configured such that this movement is counter resisted by a counter force which...

...patient movements.

According to another preferred embodiment of the present invention

ultrasound portion 30 of **connector** 21 is preferably constructed so as to
enable the detachment of an ultrasound transducer from...

...the site of contact
between transducer 39 and a cervical or endovaginal tissue region, the **connection** between forceps holder 22 and ultrasound portion 30 disintegrates. This feature of **connector** 21 also prevents damage to cervical tissue held by grasping portions 9 and 13 of...

...forceps 5.

It will be appreciated that the above described configuration is one configuration of **connector** 21 with which counter resisted movement of ultrasound transducer 39 relative to forceps 5 can be realized. Alternative configurations employing spring elements at a point of **attachment** between
ultrasound holder portion 30 and forceps portion 22, or alternatively between forceps portion 22...

...such as biological tissue, to appropriately propagate.

Furthermore, the design described herein with respect to **connector** 21 provides an additional advantage as is compared with the **connector** of
WO 99/03399. Since grasping portions 9 and 13 serve as a fulcrum point... the following
method steps in which, in a first step, apparatus 20 is assembled by **connecting** ultrasound holder portion 30 to element 22 which is **attached**
to, or integrally formed with, forceps 5. Following this step, ultrasound transducer 39 is **attached** to acceptor 34 via adapter 35, and it is appropriately **positioned** . Apparatus 20 is then **inserted** into the patients
vaginal cavity and ultrasound transducer 39 is **positioned** against the patient's endovaginal or cervical tissue region and forceps 5 is then used...

...means of grasping portions 9 and 13. Alternatively holder portions 30 and 22 are
assembled, **inserted** and **positioned** within the **vagina** of a patient via
forceps 5, following which ultrasound transducer 39 is **attached** to holder 30 and is appropriately **positioned** .

During an intrauterine procedure, apparatus 20 is preferably held by one hand of the physician...

...introduce a medical
instrument through the cervix of the patient into the uterine cavity. The **surgical procedure** is then carried out and is continuously **guided** and
monitored by means of ultrasound transducer 39.

It will further be appreciated in this...

...11 are directly below ultrasound transducer 39, a physician can easily manipulate forceps 5 into
position even in a small confined space and in addition be provided with

ample space between apparatus 20 and the **vaginal wall** through which a medical instrument can be introduced into the uterine cavity . Furthermore, since both...

...for guiding any medical instrument (tool) for diagnostic and/or surgical purposes into the cervix, **uterine** or **fallopian** tubes of the patient. Such instruments include, but are not limited to, uterine sound - plastic ...

...aspirate curette, vacuum curette, aspirate tube, coagulator, embryo transfer set, insemination device, embryo gamete intra- **fallopian** transfer (GIFT) catheter, embryo intra **uterine** insemination (MI) catheter, Karman catheter ...is preferably constructed of a light material such that it can be easily held in **place** and maneuvered by the physician.

According to another aspect of the present invention apparatus 20...

...element such as a CCD or a video camera. The image transmitting device is preferably **connected** to apparatus 20, such that ultrasound transducer 39 is preferably **inserted** into the patient's **vagina** and the image transmitting device is preferably **inserted** through the cervical canal into the uterine cavity.

For example, transducer 39 may be **connected** to an endoscopy equipment so as to allow simultaneous monitoring of the **surgical procedure** by means of two complementary methods, thereby enabling to accurately determine the **position** of a medical instrument with relation to the uterine **wall** .

The system described hereinabove not only allows for ultrasonic view of the treated area in the cervix, **uterine** or **fallopian** tube, it further allows for ultrasonic view of the operating medical instrument. This can be effected by this **system** provided that the **medical** instrument is brought "inside" or "into" the beam generated by the ultrasound transducer, which beam is shaped as a triangle **located** within the ultrasound plane of view.

Since apparatus 20 is **inserted** into a portion of the **vagina** of the patient prior to the **insertion** of a medical instrument through the cervix, and further since the medical instrument and apparatus...

...39 included within apparatus 20 as further described hereinabove with respect to Figures 3-4b.

System 50 further includes a **medical** instrument 60. Instrument 60 serves to perform the intra-uterine, ...aspirate curette, vacuum curette, aspirate tube, coagulator, embryo transfer set, insemination device, embryo gamete intra- **fallopian** transfer (GIFT) catheter, embryo intra **uterine** insemination (IUI) catheter, Kan-nan catheter for uterine aspiration, minimally invasive surgery equipment, such as...
...ultrasound transducer 39 and therefore also with respect to the ultrasound beam generated thereby.

Several **exemplary** embodiments of device 62 are described jo hereinbelow. Each of which readily enables the surgeon...

...instrument employed with the ultrasound transducer and therefore.

also with the beam generated thereby. By **inserting** the medical instrument
coaxially with its alignment, the surgeon ensures that the medical instrument is...

...resides and therefore, eventually the instrument will be visualized in the ultrasound image obtained. This **procedure** assists the **surgeon** in bringing the medical instrument "inside" or "into" the ultrasound beam. Device 62 is typically
connected to a distal end 68 of transducer 39 via a suitable **connector**,
generally marked as 64. However, direct **connection**, and **connection** to other **locations** on apparatus 20 are also envisaged.
Connector 64 is preferably equipped with wings 65, being aligned within the plane of the ultrasound...

...To this end, distal end 68 of
transducer 39, is asymmetrically formed, such that when **connector** 64 is applied thereon, wings 65 acquire their respective positions.

As specifically shown in Figure 5, and according to one embodiment, device 62 includes an extension 66 coaxially **connected** at a distal end 68 of ultrasound transducer 39, thereby facilitating visual alignment of medical...

...therefore also with respect to the ultrasound beam generated thereby.

According to this embodiment, while **inserting** medical instrument 60 through the cervix of the patient, the surgeon ensures that instrument 60 is **positioned** parallel to extension 66, to thereby direct instrument 60 "inside" or "into" the ultrasound beam...

...present invention, device 62 includes at least one light
beam generator 69 (four are shown) **connected** to apparatus 20, preferably
to transducer 39 thereof, preferably via **connector** 64. Light ...
non-coherent light sources are also
applicable.

According to this embodiment of the invention, while **inserting** medical instrument 60 through the cervix of the patient, the surgeon ensures that light beams...

...receive energy from a power source,
e.g., a battery, implemented in a battery housing **located** within **connector** 64.

Each of generators 68 may be, for example, a pointer type laser diode, having...

...to still another
embodiment of the present invention, device 62 includes an imaging implement 72 **connected** to apparatus 20, preferably to transducer 39 thereof, preferably via **connector** 64. Imaging implement 72 serves for

generating an image of objects in the plane defined...

...therefore also
with respect to the ultrasound beam generated thereby. According to this embodiment, while **inserting** medical instrument 60 through the cervix of the
patient, the surgeon ensures that imaging implement...perceived through transducer 39 such that a
relative positioning can be assessed and used to **guide** medical instrument 60 accordingly.

Implement 72 is **positioned** such that when an image showing instrument 60 in, for example, a vertical alignment with...

...io energy from a power source, e.g., a battery, implemented in a battery housing **located** within **connector** 64.

According to a preferred embodiment of the present invention imaging implement 72 is a...

...analysis, which may be used to estimate the depth to which instrument 60 has been **inserted** at any given time. Image recognition is well known art and therefore will not be...generators 90 which serve for generating
electromagnetic fields. One of electromagnetic field generators 90 is **connected** to apparatus 20, preferably to transducer 39 thereof, preferably
via **connector** 64. The other electromagnetic field generator 90 is **connected** to medical instrument 60. According to this embodiment of the present invention, device 62 further includes at least one electromagnetic
field sensor, generally indicated by 92. Sensor 92 is **positioned** in a predetermined **position** outside the patients body, such that by analyzing
the magnetic fields perceived by sensor 92, spatial information of the relative **locations** of electromagnetic field generators 90 and therefore of transducer 39 and medical instrument 60 is...

...90 are preferably powered by a mutual power source
implemented in a dedicated housing in **connector** 64 or by independent power sources. Suitable power wiring is envisaged.

Further according to the present invention there is provided a **method** of guiding a **medical** instrument while monitoring an intra-uterine,
cervical or tubal procedures. The method is effected by...
...in a first step ultrasound transducer 39, mounted
within apparatus 20 of system 50 is **inserted** into a portion of the patient's **vagina** and ultrasound transducer 39 is fixed against a tissue portion of the patient's **vagina** or cervix via forceps 5. Alternatively, holder portions 30 and 22 of apparatus 20 are **inserted** and **positioned** within the **vagina** of a patient via forceps 5, following which ultrasound transducer 39 is **attached** holder 30 and appropriately **positioned** .

In a second step of the method according to the present invention, a medical instrument 60 is **inserted** through the cervix and aligned with respect to ultrasound transducer 39 and therefore also with...present invention allows to monitor through the course of the intra-uterine, cervical or tubal **procedure** , a **position** of **medical** instrument 60.

Thus, the present invention provides forceps which greatly facilitate intrabody positioning of a medical instrument or device **attached** thereto.

It will be appreciated that due to its novel configuration and distinctive features, the...
...easily distinguishable from prior art forceps, a feature which is especially io useful in surgical **situations** .

Although the invention has been described in conjunction with specific embodiments thereof, it is evident...

Claim
1 A forceps useful in a **medical** **procedure** comprising:
(a) a first arm including a first finger holding portion, a first pivot portion...

...a
second pivot portion and a second grasping portion;
wherein said first pivot portion is **attached** to said second pivot portion so as to form a pivot point about which said first and said second arms corotate in a scissor-like motion from a grasping **position** to an open **position** and vise versa, whereas said first and said second finger holding portions are **positioned** on one side of a plane defined by a length of said first ann, said...

....procedures, the apparatus comprising an assembly, including:
(a) an endovaginal ultrasound transducer being adapted for **insertion** into a portion of a patient's **vagina** so as to be **positionable** against a cervix of the patient;
(b) a forceps including:
(i) a first arm including...
...a second pivot portion and a second grasping portion; wherein said first pivot portion is **attached** to said second pivot portion so as to form a pivot point about which said first and said second anns co-rotate in a scissor-like motion from a grasping **position** to an open **position** and wise versa, whereas said first and said second finger holding portions are **positioned** on one side of a plane defined by a length of said first an-n, said plane is perpendicular to said scissor-like motion; and
(c) a **connector** for interconnecting said ultrasound transducer and said forceps, said **connector** being constructed so as to enable counter resisted movement of said ultrasound transducer relative to...

...in a direction away from the cervix.

6 The apparatus of claim 5, wherein said **connector** includes:
(i) a forceps portion being **attachable** to said forceps; and
(ii) an ultrasound holder portion being **attachable** to said forceps portion, said ultrasound holder portion including a body and an ultrasound acceptor being for holding said ultrasound transducer, said acceptor is **connected** to said body of said ultrasound holder portion in a manner so as to allow...apparatus of claim 6, wherein said ultrasound holder
portion ftirther includes an ultrasound adapter element **positioned**

within
said acceptor for firrnly holding said ultrasound transducer within said acceptor.

9 The apparatus of claim 6, wherein said ultrasound holder portion of said **connector** is constructed so as to detach from said forceps portion upon an application of a...

...longitudinal axis thereof.

10 The apparatus of claim 7, wherein said forceps includes an element **attached** to, or integrally formed with said first arm, said element.being for engaging said forceps portion of said **connector** .

11 The apparatus of claim 16, wherein said first and said second grasping portions are...

...cervical and tubal procedures, the system comprising:
(a) an endovaginal ultrasound transducer being adapted for **insertion** into a portion of a patient's **vagina** ;
(b) a forceps including:
(i) a first arrn including a first finger holding portion, a...

...a second pivot portion and a second grasping portion; wherein said first pivot portion is **attached** to said second pivot portion so as to form a pivot point about which said first and said second arms co-rotate in a scissor-like motion from a grasping **position** to an open **position** and wise versa, whereas said first and said second finger holding portions are **positioned** on one side of a plane defined by a length of said first arm, said plane is perpendicular to said scissor-like motion;
(c) a **connector** for interconnecting said ultrasound transducer and said forceps, said **connector** being constructed so as to enable counter resisted movement of said ultrasound transducer relative to...

...portions are adapted for grasping cervical tissue.
14 The system of claim 12, wherein said **connector** includes:
(i) a forceps portion being **attachable** to said forceps; and
(ii) an ultrasound holder portion being **attachable** to said forceps portion, said ultrasound holder portion including a body and an ultrasound acceptor being for holding said ultrasound transducer, said acceptor is **connected** to said body in a manner so as to allow counter resisted movement of said...system of claim 12, wherein said ultrasound holder
portion further includes an ultrasound adapter element **positioned** within
said acceptor for fin-nly holding said ultrasound transducer within said acceptor.

17 The system of claim 12, wherein said ultrasound holder portion of said **connector** is constructed so as to detach from said forceps portion upon an application of a...

...longitudinal axis thereof

18 The system of claim 14, wherein said forceps includes an element **attached** to, or integrally formed with said first an-n, said

element being for engaging said forceps portion of said **connector** .
19 The system of clah-n 12, wherein said device includes an extension coaxially **connected** at a distal end of said endovaginal ultrasound transducer thereby facilitating visual alignment of said...

...The system of claim 12- wherein said device includes at least one light beam generator **connected** either to said **connector** , to said ultrasound transducer or to said forceps, said light beam generator being for generating...

...ultrasound beam.

21 The system of claim 12, wherein said device is an imaging device **connected** to said endovaginal ultrasound transducer, said imaging
device being for generating an image of said...

...The system of claim 21, wherein said imaging device includes an ultrasound generator.

27 The **system** of claim 21, wherein said **medical** instrument is provided with marks along at least a portion thereof, said marks are identifiable...
...two electromagnetic field generators for generating electromagnetic fields,
one of said electromagnetic field generator is **connected** either to said **connector** , to said ultrasound transducer or to said forceps, whereas the
other electromagnetic field generator is **connected** to said medical instrument, the device further includes at least one electromagnetic field sensor of a predetermined **position** , such that by analyzing magnetic fields perceived by said at least one electromagnetic sensor, spatial infon-nation of the relative **locations** of said electromagnetic field generators and therefore
of said endovaginal ultrasound transducer and said medical...

...thereby facilitating alignment of said medical instrument with respect to said ultrasound beam.

29 The **system** of claim 12, wherein said **medical** instrument is selected from the group consisting of an image transmitting device and a surgical...

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00793432 **Image available**
METHODS AND DEVICES FOR TREATING URINARY INCONTINENCE OR OBSTRUCTION
METHODES NON INVASIVES ET AVEC EFFRACTION MINIMALE ET DISPOSITIFS POUR LE TRAITEMENT DE L'INCONTINENCE URINAIRE OU DE L'OBSTRUCTION URINAIRE

Patent Applicant/Inventor:
YEUNG Jeffrey E, 834 North White Road, San Jose, CA 95127, US, US (Residence), US (Nationality)
YEUNG Teresa T, 834 North White Road, San Jose, CA 95127, US, US (Residence), US (Nationality)

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Detailed Description
Claims

Detailed Description
... 1066). Surgical procedures designed to meet these two simple goals differ in their suture material, **placement** , depth, distance from urethra and location of abdominal **anchoring** sites.

For anatomic corrections, sutures are used to pull and lift the **vaginal wall** forward and upward along with the urethra and bladder neck. In essence, the **vaginal** tissue serves as the supporting backboard for the urethra. Sutures are then **fastened** onto abdominal tissue or the pubis symphysis. The major differences between surgical **procedures** of this type are the location of incisions, **vaginal** suspension, transvaginal suspension, and requirement of tissue dissection.

Burch and Marshal-Marchetti-Krantz procedures use the **vaginal** -abdominal approach requiring abdominal incisions; while Raz suspensions, Starney needle and Gittes needle are the
6
transvaginal suspension procedures. Some surgeons prefer opening both abdominal and **vaginal** cavities.

Several less invasive needles and devices (US patent 5,860,425, US patent 5,836,314...

...Green et al.) are designed to pull the urethra forward by attaching and

pulling the **vaginal wall** . Without a direct view of the surgical site, one of the major potential problems with the devices is the uncertainty of **suture** tension, let alone obtaining the optimal **suture** tension. If the **suture** is too tight, the urethra is too restricted, and urinary obstruction occurs. Removing existing **sutures** with surrounding fibrotic tissue formation I 0 is an invasive surgery. If the tension is...

...obstruction and/or persistent postoperative pain, which may be caused by urethral kinking, improper suture **placement** or improper tension. Other complications, such as wound infection, abscess formation, genitofemoral nerve entrapment, 5...

...p. I 1 0 1). Furthermore, due to depth and axis alteration, numerous vaginal posterior **prolapses** have been reported following anatomic correction (Langer R. et al., Obstet. Gynecol. 1988, 72:866...

...1 1 0 1).

For intrinsic sphincter dysfunction, merely anatornic correction supported by a soft **vaginal** tissue is inadequate. Sling procedures are designed to loop behind the urethra and **fasten** onto the abdominal tissue. The loop forms a backboard, which compresses and restricts the urethral 5,934,283 to Willem et al.) utilizes non- **suture** material as a sling. 7
Common complications of the slings include sensations of inguinal pulling, potential erosion of the urethra, urinary retention, urethral obstruction and enterocele (posterior vaginal **hernia**). Most of these complications are once again due to improper tension of the **suture** or sling.

If the sling is too tight, the urethra is obstructed; if it is...
...nodes.

Usually when all else fails in treating intrinsic sphincter deficiency, an artificial sphincter is **implanted** beneath the bladder neck around the urethra, mechanically pinching or restricting the opening of the...

...and US patent 4,552,128 to Haber) are designed to restrict the urethra mechanically.

Implantation of an artificial sphincter is an invasive surgery. Typically, an inflatable cuff is **inserted** around the bulbous urethra in the male or the bladder neck in the fernale. The tubing, liquid reservoir and pumps are **implanted** in the abdomen. Hospital post-surgical care is around three days.

Post-surgical complications include...R-4VENTIONS
Similar to the primary goals of the backboard surgical procedures, this invention also **corrects** urethral hypermobility by providing posterior support and treats intrinsic sphincter dysfunction by increasing urethral resistance...

...to gain support through significantly invasive procedures, an internal urethral support is inserted through and **anchored** within the urethra to promote urethral closure from inside of the urethra, noninvasively. Another part...

...partially ligates the openings of the bladder neck and/or urethra through a minimally invasive **suturing** technique. For urethral obstruction, a

9
similar internal urethral support is used within the urethra...

...and widen the urethral lumen against the obstruction.

Internal Urethral Support
For ease of urethral **insertion** . a portion of an internal urethral support can be made with resilient material capable of...

...is / are fitted into a delivery device to be delivered into the urethra.

The closed **position** of the internal urethral support can also be called the delivery **position** . To promote urethral closure, the internal urethral support is best deployed and opened in the urethra laterally. In the deployed **position** , the urethral support is in a stable and relaxed configuration. If I 0 the internal...internal urethral support deployments.

1 0
Resting Sphincteric Closure by Internal Urethral Support as Urethral **Anchors** Some patients, including those with the Type III stress incontinence, suffer from an opened urethra...

...To increase urethral resistance, a sphincteric shaper made with a curved or shape memory rod **anchored** by two or more internal urethral supports is embedded in the outwardly sagging posterior urethral...

...anterior urethral wall across from it. In essence, the magnets are mounted within the mucosa, **approximating** the posterior and anterior walls and closing the lumen. During voluntary ...lumen to interrupt. A urethral extensor comprised of two internal urethral supports acting as urethral **anchors** linked by a **connector** is designed to mimic the extension of the urethra. The internal urethral supports are spring...

...apart within the urethra. In response to the lengthwise stretching of the urethra by the **anchored** internal urethral supports in the lumen, the urethra lengthens and the opening of the lurnen...
...Urethral Support
In addition to bending the internal urethral support into a closed or delivery **position** , for ease of **insertion** and **implantation** , the opened and closed positions of the internal urethral support can be controlled by spring, hinge or multiple resilient elements. In the urethra, the opened **position** of the internal urethral support can also be called the deployed **position** . It may even be
1 1
possible to **insert** a rigid internal urethral support in the urethra by manipulation into a deployed **position** within the urethra, without bending or folding the device. The internal urethral support can be...

...internal urethral support device, especially around mucosal contacts.

Benefits of Internal Urethral Support Over Surgical **Procedures**
Instead of relying on repositioning tissues to provide support through significantly invasive procedures, the internal urethral support is **inserted** into the urethra non-invasively to pre-stretch the wall, pre-dispose the urethra, support...

...can also be used in multiple variations to promote urethral closure non-invasively: (1) to **connect** with a shape memory element bringing the posterior wall forward, (2) to pull the urethral the dissection, the

bladder or urethra is frequently cut or punctured, requiring **repair** and postponement of the surgical **procedure** until the puncture has healed. A **suture** device (US Patent 5,895,395 to Yeung) is designed to **guide** a **suture** behind a structure such as the bladder neck or urethra through a small abdominal incision, without dissection.

Among past surgical failures in various bladder and urethra repositioning procedures, many sutures **approximating** the urethra to the abdominal ligaments were too close to the urethra. Due to the close proximity of the **suture** and the pliable nature of the urethra, the tension of the **suture** created kinks in the urethra, causing urinary obstruction. Furthermore, the rubbing of the abdominally **anchored** **suture** onto the urethra is presumably the cause of fibrotic tissue formation
1 2
around the...

...and sometimes urethral erosion to the point of severance. Surgeons everywhere are taught to avoid **suturing** near the urethra to correct incontinence.

The partial bladder neck or partial urethral ligation procedure proposed in this invention is different. The **suture** is used only to restrict the lumen opening and support the urethral wan by encircling...

...being tied around the bladder neck or urethra, without attaching to abdominal tissue. Therefore, the **suture** is under minimal tension and rubbing friction around the bladder neck or urethra. To prevent excessive lumen restriction by the ligating **suture** , a spacer shaped and sized to provide a manageable lumen opening is **inserted** from the urethra into the bladder. With the partially restricted urine passages, the patient requires...

...I 0 close the partiaBy restricted lumen, resulting in improved urinary control.

Acknowledged by experts, **suture** tension for anatomic correction or sling **procedures** is more of an art than a science. Most complications are caused by excessive or inadequate **suture** tension. On the other hand, the conforming spacer within the urethra limits the **suture** tying to a partial ligation. Unlike the **vaginal** sling procedure, partial ligation does not involve the **vagina** .

1 5 Therefore, it is acceptable to men and childbearing women as well. Unlike the bulky, tissue choking cuff of an artificial sphincter, the size and tension of the **suture** and external urethral support in partial ligation are insignificant; hence little to no lifestyle restrictions are imposed.

With an endoscopic **suture** device, partial ligation is a minimally invasive procedure, yet it has the potential benefits of...multiple internal urethral support(s) to dilate the lurnen and increase urine flow.

REFERENCE NUMBERS
Suture delivery needle I
1 3
Suture delivery needle distal. ope 2
Strain, stress relief window 5
Shape memory needle 7
Shape memory needle distal opening 8

Suture receiving needle I 0
Suture receiving needle distal opening I I
Receiving slot for shape memory needle 12
Penetration marker 1 3
Suture 21
1 0 Filament 22
Knot pusher 26
Lumen 100
Urethra 101
Direction of urethropelvic...

...tension 102
1 5 Force of urethral closure 103
Internal urethral support (IUS) 104
Tissue **anchoring** element 105
Resilient element 106
IUS delivery device 107
Flexible plunger 108
Flexible tube 109
Deploy opening 110
Bladder ill
Bladder neck 112
Mucosa, 113
Vagina 114
Pubis symphysis 115
Rectum 116
Urine 117
Anterior urethral wall 118
Posterior urethral wall 119
IUS delivery device insertion marker 120
1 4
Suture knot 121
Penetration stops 122
Tissue ingrowth opening 123
Prostate 124
IUS hinge 125
Pad 126
External urethral support 127
Spacer 128
Spacer **insertion** marker 129
Spacer orientation line 130
Lateral urethral wall 131
Spacer opening 132
Spacer posterior...

...valve 136
Syringe 137
Pressure gauge 138
Three-way valve 139
Drain 140
Luer lock **connector** 141
Spring 142
IUS delivery device orientation line 143
IUS connector 144
IUS **connection** port 145
Sphincteric shaper elastic rod 146
Detrusor contraction 147
End cap 148
IUS separator 149
Medium reservoir 150

Spring retainer 151
Sphincteric shaper 152
1 5
Urethral extensor 153
Suture device 154
Magnet 155
Magnetic urethral closure device 156
BRIEF DESCRIPTION OF DRAWINGS
Figure I...

...the lumen 100 shut.
Figure 3 indicates bladder 1 1 1 positions: a wefl-supported **position** in dashed lines and a **descended** position with a widened **bladder** neck 112 in solid lines.

Figure 4 depicts a section of poorly supported, leaning urethra...

...during stress.

Figure 6 depicts a longitudinal section of the urethra 101 with urethropelvic ligaments **located** perpendicularly above and below the page.

Figure 7 indicates a longitudinal view of urine 117...

...supported urethral posterior waH 119 during stress.

Figure 8 shows a typical prior art surgical **procedure** for urinary incontinence, using sutures 21 to pull the **vagina** 114 forward, supporting or gently compressing the urethral posterior wall.

Figure 9 depicts a section of the surgicafly corrected urethra 101 with **sutures** 21 pulling the **vaginal** 114 tissue to support and gently compress the urethral posterior wau 119.

Figure 10 shows ...one in Figure I 1.

Figure 13 depicts an IUS delivery device 107 marked with **insertion** markers 120 and orientation line 143 and loaded with a resiliently bent internal urethral support 104.

1 6
Figure 14 shows the **insertion** of the IUS delivery device 107 and deployment of the internal urethral support 104 into...

...shows yet another IUS delivery device 107 with the internal urethral support 104 slanted or **positioned** for deploying the internal urethral support 104 toward one side of the urethra 101.

Figure...and a very small B" for the posterior wall 119.

Figure 32 shows a possible **connection** of two or more internal urethral supports 104 by a **connector** 144, which allows vertical movement and resilient bending of individual internal urethral support 104.
Figure 33 depicts an internal urethral support 104 with a **connection** port 145.

Figure 34 depicts an internal urethral support 104 as in Figure 33 in...

...with a pair of spring retainers 151 to keep the springs 142 under

tension during **implantation** .

Figure 42 depicts two contracting springs 142 pulling two internal urethral supports 142
Rirther apart. 1 8
Figure 43 shows the urethral extensor 153 with the spring retainers 151 **inserted** into a urethra 101.

Figure 44 depicts tensile stretching of the urethra 101 by the...

...by the urethral extensor 153 device at rest.

Figure 46 depicts a deployed or opened **position** of another version of an internal urethral support 104, which extends by a spring 142.

Figure 47 shows a compressed or closed **position** of the internal urethral support 104 1 0 indicated in Figure 46.

Figure 48 depicts another type of internal urethral support 104 with **locking** hinge 125 in an opened or deployed **position** .

Figure 49 shows a partially folded internal urethral support 104 for urethral **insertion** .

Figure 50 indicates an internal urethral support 104 with two resilient elements 106 held by 1 5 two end caps 148, in an opened or deployed **position** .

Figure 51 shows a compressed or closed configuration of the internal urethral support 104 shown...

...support 104 with smooth contour for installation in urethra, and tissue ingrowth openings 123 for **anchoring** and prevention of migration.

Figure 53 depicts another type of internal urethral support 104 with multiple tissue **anchoring** elements 105 and a resilient element 106, in an opened or deployed **position** .
Figure 54 shows a resiliently bent internal urethral support 104, similar to the one in...

...opening of the bladder neck 112 and to gently compress the urethral sphincter by a **suture** 21 sling.

Figure 57 indicates an endoscopic **suture** device 154 containing a **suture** delivery needle 1, shape memory needle 7, and **suture** receiving needle 10.

Figure 58 depicts the deployed hook of the shape memory needle 7, bridging the gap between **suture** delivery needle 1 and **suture** receiving needle 10.

1 9
Figure 59 shows a spacer 128 sized to provide a...

...or urethra during the partial ligation procedure.

Figure 60 depicts an abdominal penetration of the **suture** device 154 straddling the bladder neck 112 with a spacer 128 **inserted** . The shape memory needle 7 contains a flexible filament 22.
Figure 61 indicates the deployment of the shape memory needle 7 into the

distal opening 11 of the **suture** receiving needle 10 behind the bladder neck 112.

Figure 62 shows the advancement of the...

...into the proximal opening of shape memory needle 7, exiting the proximal opening of the **suture** receiving needle 10.

Figure 63 depicts retraction of the resilient hook of shape memory needle 7 back into the **suture** delivery needle 1, leaving only the **suture** 21 behind the bladder neck 112.

Figure 64 shows the withdrawal of the **suture** device 154, **suture** delivery needle 1 and **suture** receiving needle 10, leaving the **suture** 21 looped behind the bladder neck 112.

Figure 65 depicts lumen 100 restriction by a **suture** 21 tied with a knot pusher 21. The 1 5 spacer 128 in the bladder...

...a semi-rigid external support 127 advancing behind the bladder neck 112, by the connecting **suture** 21.
Figure 67 indicates a partial ligation with the external support 127 tied behind the...ligate the lurnen 100 in the bladder neck 112.

Figure 70 shows a spacer 128 **connected** to a bladder filling and pressure checking instrument.

Figure 71 indicates the combination of partial...

...75 depicts a modular internal urethral support 104 with a resilient element 106, a tissue **anchoring** element 105 and a tissue ingrowth opening 123, composed of multiple pieces.

Figure 76 shows...

...forces of the magnetic urethral closure device 156.

Figure 80 indicates three types of tissue **anchoring** elements, a tissue-penetrating spear, a tissue hook and a tissue ingrowth opening 123.

DETAILED...
...for urinary incontinence is to support the urethral posterior wall 119, usually by repositioning the **vagina** 114 with **sutures** 21. The **vaginal** repositioning in Figure 8 indicates the pre-surgical positions of the **vagina** 114 in dotted lines and the urethra 101 and bladder in dashed lines. Figure 9...

...for the urethral sphincteric closure during stress as shown in Figure IO.

Instead of invasively **placing** a support outside the urethra 101, the internal urethral support (IUS) 104, shown in Figure I 1, is a non-invasive or micro-invasive **insert** , entering through the external opening of the urethra 101 to **anchor** within the urethra 101.

2 1
Several principles behind using ...131 by pre-stretching the urethra 101 from inside, (2) narrowing the lumen 100 by **approximating** the posterior 119 and anterior 118 walls toward closure, and/or (3) supporting and

stiffening...

...internal urethral support 104 must be stiff enough to stretch out the urethral wall 131, **anchor** well without shifting, be thin enough to allow mucosal 113 coaptation, and be biocompatible with...

...the supple urethra 101, but not many can be bent from an open or deployed **position** as in Figure I I to a closed or delivery **position** as in Figure 12. Shape memory alloys, such as nickel titanium, and some polymers. such...

...142 loaded internal urethral support 104 can extend nearly twice the length from a delivery **position** as indicated in Figure 47 to a deployed **position** in Figure 46. The internal urethral support 104 can also be operated by a hinge 125 between two projecting members. In the delivery **position** , the internal urethral support 104 is folded, as depicted in Figure 49. Within the urethra 101, the projecting member will then be deployed, as indicated in Figure 48. The deployed **position** can be **locked** by a locking hinge 125 to ensure proper **anchoring** within the urethra 101.

Due to the normal muscular movement of the urethra 101, the fluid dynamics of urine and the importance of internal urethral support 104 location, **anchoring** of the internal urethral support 104 is crucial for long term success. In Figure I 1, two spike-like **tissue** anchoring elements or projections 105 **protruding** from both ends are designed to pass through the mucosa 113 and to **anchor** in the urethral muscle beneath, while smooth surfaced penetration stops 122 compress the spongy mucosa...

...stretching, shaping and/or widening by the deployed internal urethral support 104. For long tenn **anchoring** , tissue ingrowth openings 123 as indicated in Figure 52 promote incorporation of tissue into the...

...support 104 may be formed of a generally rigid material and manipulated into a deployed **position** within the urethra,
2 2
without bending or folding the device. It is also possible to have both tissue ingrowth opening 123 and tissue **anchoring** elements 105 in an internal urethral support 104 as indicated in Figure 80.

Figure 53 shows variation of the internal urethral support 104 in a deployed **position** , Figure 54 in a delivery **position** and Figure 55 within a delivery device 107. This version of the internal urethral support has a series of hook-like tissue **anchoring** elements 105 designed to **anchor** onto the mucosa 113.

Due to the set direction of lumen 100 closure controlled by the urethral muscles and urethropelvic ligament. the orientation and **position** of the internal urethral support 104 are crucial to promote continence. The urethral 101 sphincter...

...13 shows a delivery device 107 loaded with an internal urethral support 104 for urethral **insertion** . Figure 14 shows the delivery device 107 in the urethra 101. A flexible tube 109...

...a flexible plunger 108 are made to tolerate the curvature of the urethra 101 during **insertion** .

The **insertion** marker 120 **located** on the exterior of the delivery

device 107 allows the surgeon to estimate the **inserted** depth of delivery device 107. For ultrasound guiding capability, the delivery device 107 can be...

...preferred, an orientation line 143 is drawn on the device 107 to confirm the lateral **position** of the internal urethral support 104 prior to deployment. For deployment, the plunger 108 pushes...support 104 on the posterior urethral wall 119, the internal urethral support 104 can be **placed** at an angle in the delivery device 107 as indicated in Figure 19. Figure 20...and the tensile pulling of the urethropelvic ligament 102. Currently, many prior art incontinence surgical **procedures** are performed but fail because of incorrect diagnoses. To minimize the possibility of an ineffective internal urethral support 104 permanently **inserted** in patients, a test version of internal urethral support 104 made with biodegradable materials, such...

...the test version has degraded. However, if the test version was not effective at the **inserted** site, other **locations** may be tested for effective urinary control with another biodegradable internal urethral support 104, or a traditional surgical **technique** may be pursued.

The biodegradable internal urethral supports 104 are non-invasive and temporary in...

...can be helpful as a diagnostic tool to determine the cause of incontinence, optimize the **position** of the permanent internal urethral support 104, and to maximize the success rate of traditional...

...super-elastic or shape memory properties can be used in the resilient section 106 in **connection** with polypropylene or other polymers for the penetration stops 122 contacting the mucosa 113. Terminally...

...the possibility of improved efficacy, two internal urethral supports 104 may be linked by a **connector** 144, as depicted in Figure 32, wb&h allows vertical movement to accommodate the natural mobility of the urethra 101. The **connector** 144 utilizes a post capable of sliding in a tube. The internal urethral support 104 can also have a **connecting** port 145 as indicated in Figure 33 for linking with other devices, without interfering with...a sphincteric shaper 152 containing a shape memory or elastic rod 146, which can be **inserted** near the posterior urethral wall 119 and **anchored** by internal urethral supports 104 as indicated in Figure 37. The shape memory rod 146, three **anchoring** internal urethral supports 104 and two round end caps 148 to avoid urethral puncture are shown in Figure 35. To prevent shifting of the **anchoring** internal urethral supports 104 along the shape memory rod 146 during device installation, IUS separators 149 are **inserted** as indicated in Figure 36. The IUS separators 149 can be made with biodegradable materials...

...with moisture activated disintegrating materials, such as gelatin or collagen. In the urethra 101, the **anchored** shape memory or elastic rod 146 resumes the pre-disposed curvature, pulling the posterior 119...
...created by the inwardly indented posterior wall 119 embedded with the internal urethral support 104 **anchored** elastic rod 146.

To urinate, both detrusor 147 and urethral muscles contract to increase urethral...

...prevent turning of the shape memory or elastic rod 146 in the urethra 101, the **connection** port 145 of the internal urethral support 104 is

square, as indicated in Figure 33...

...the urethral walls are stretched from within, elongating the cross-section of the urethra 101, **placing** the posterior 119 and anterior 118 walls even closer to each other, and enhancing the...the lumen 100. To mimic urethral extension, the urethral extensor 153 disclosed herein contains two **anchored** internal urethral supports 104 mounted within an open urethral sphincter. The two internal urethral supports...

...7
depicts a longitudinal view of the extension-induced lumen 100 closure with a thin **connector** 144, in this case a square rod, concealed in the coaptation of mucosa 113.
Partial...

...Bladder Neck and Urethra
The sling procedure, a prior art, is designed to loop a **suture** 21, tissue or other material behind the bladder neck 112 or urethra 101 to gently compress and restrict the outlet. Figure 56 depicts the sling correction from a pre-surgical **position** in dashed fine to a manageable opening at the bladder neck 112. However, as mentioned, the most arduous part of **placing** an artificial sphincter or a sling is the dissection behind the bladder neck 112 or urethra 101. To protect the integrity of the urethra 101 during dissection, the **vaginal** 114 cavity is frequently cut opened for **suture** 21 passage.

The endoscopic **suture** device 154 in US Patent 5,895,395, which is hereby incorporated by reference, may be helpful to place a **suture** 21 through a small abdominal incision and around the bladder neck 112 without dissecting around the bladder neck 112 or cutting the **vagina** 114.

Figures 57-64 show the operation of the endoscopic **suture** device 154, which can be used to improve the sling procedure (prior art) of Figure 56 and/or the partial ligation procedure of Figures 65 Major components of the **suture** device 154 contain three needles operating between two simple needle positions. In a retracted **position** as indicated in Figure 57, a hollow shape memory needle 7 with a sharp hook is resiliently straightened in a **suture** delivery needle 1.

In a deployed **position** as indicated in Figure 58, the hook is deployed from the **suture** delivery needle 1 into a **suture** retrieving needle 10. The procedure begins with the **insertion** of a spacer 128 as indicated in Figure 59, through the urethra 101 into the bladder 111. A small abdominal incision is made. In the retracted position, the **suture** device 154 is **guided** by an endoscope to penetrate the ligament and to straddle the bladder neck 112 or urethra 101 with the **suture** delivery needle 1 and **suture** retrieving needle 10. The **suture** delivery needle 1 and **suture** retrieving needle 10 can also be **inserted** separately and independently. A flexible filament 22 connecting tip-to-tip with a **suture** 21 is threaded through the proximal opening of the shape memory needle 7 to the...

...60. The resilient hook of the shape memory needle 7 is then deployed from the **suture** delivery needle 1, penetrating tissue behind the bladder neck 112 or urethra 101 into the **suture** retrieving needle 10, as depicted in Figure 61. The suture- **connecting** filament 22 is pushed from the proximal opening of the shape memory needle 7 into the distal opening 1 1 of the **suture** retrieving needle 1 0, as indicated in Figure

62. The suture- **connecting** filament 22 continues to advance and is retrieved from the proximal opening of the **suture**
2 8
retrieving needle 10. As a result, the mid-portion of the **suture** 21 loops around the bladder neck 112 and both ends of the **suture** 21 are exposed outside the incision. The filament 22 is then cut off from the **suture** 21. The hook is retracted back into the **suture** delivery needle 1, leaving only the **suture** 21 looped behind the bladder neck 112, as shown in Figure 63. Then, the suture device 154 is withdrawn, as depicted in Figure 64. The **suture** 21 is tied down to the spacer 128 inside the bladder neck 112 with a...

...while the bladder neck 112 may gain the most resistance simply by a lightly restricting **suture** 21 to narrow the funneled outlet intensified by anatomic descent. To strengthen the posterior wall 119, a semi-rigid external urethral support 127 can be linked, **guided** and tied behind the urethra 101 or bladder neck 112 by the **suture** 21, as depicted in Figure 66. In Figure 67, the bladder neck 112 is partially ligated, restricting the lumen 100 opening by suture 21, without **attaching** to the abdominal wall.
To create the optimal shape of the ligated openings, the distal...line 130 visible to the surgeon is marked on the spacer 128. For the proper **insertion** depth of the spacer 128, markers 129 are visible to assist with the **insertion** procedure. To prevent the spacer 128 from slipping in or out of the urethra 101 during surgery, an inflatable balloon at the distal end of the spacer 128 **anchoring** in the bladder can be helpful (not shown).

The distal portion of the spacer 128...

...operative area is made pinch resistant to ensure proper ligated lumen size. To acconunodate urethral **insertion** , the non-operative part of the spacer 128 is preferred to be flexible.

At various...

...can be performed to increase urethral resistance. With ligaments enveloped around the urethra 101, the **sutures** 21 can be sewn onto the ligaments without the possibility of sliding along the urethra...

...the mobility of the urethra 101.
2 9
To vary the partial ligation procedure, the **suture** 21 can be replaced with another tying element, such as a band or a piece...

...tissue, to increase the width of partial ligation. The tying element can be tied or **fastened** with a **locking** device, rather than a knot pusher.

While the patient is still under anesthesia, checking the...

...of the procedure by using a bladder filling medium 135 and pressure checking instrument 138 **connected** to the spacer 128, as indicated in Figure 70. The bladder 1 1 1 is...

...using coils or stents to fill inside the ballooning aneurysn-4 partial ligation with a **suture** 21 or other material supports the exterior wall without constant blood contact, no device migration...of the pylorus to delay stomach emptying for weight loss purposes. Especially with an endoscopic **suture** device, partial ligation of the pylorus is likely to be much less invasive than the stomach **stapling** **technique** currently

being used to treat obesity. Furthermore, the partial ligation **method** is likely to be totally reversible by cutting a **suture** or a pylorus restricting material.
Combination Treatments
Since urinary incontinence is the result of at least one, most likely multiple malfunctions in the urinary system, **treating** urinary incontinence may take more than one approach. For example, to improve or regain sphincteric...

...than using a pair or more of internal urethral supports 104.

Unlike the hollow stents **placed** within the lumen, which allow tissue ingrowth resulting in clogging, opening of urethral obstructions with... to increase urethral resistance by narrowing the lumen 100. In hospitals, health care professionals often **insert** catheters into the urethra 101 for draining. It is possible that the **insertion** of catheters, especially 12 French or larger, can dislocate the device or even injure the...

...should be clear to one skilled in the art that the current embodiments, methods and **surgical** sites are not the only uses for which the invention may be used. Dfferent materials and I 0 designs for the internal urethral support, delivery device, spacer, **connector** , sphincteric shaper, IUS separator, urethral extensor, spring, spring retainer, hinge, tissue ingrowth opening, **suture** , band, external urethral support, resilient element, tissue **anchoring** element, penetration stop, **suture** device and bladder filling equipment can be substituted and used. The use of this invention...

Claim
... second projection extending from said second end, wherein said internal lumen support has an open **position** and a closed **position** , and wherein, when relaxed, said internal lumen support is in said open **position** .

2 The internal lumen support of claim I wherein at least a portion of said...

...shape memory alloy.

4 The internal lumen support of claim 2 wherein, in said closed **position** , said first end and said second end are separated by a first distance and wherein, in said open **position** , said first end and said second end are separated by a second distance, said second...

...support of claim I wherein said first and second projections take the form of tissue **anchoring** elements.

7 The internal lumen support of claim I wherein said first and second projections...said hinge.
20 The internal lumen support of claim 19 wherein said hinge has a **lock** configured to hold said internal lumen support in said open **position** . 2 1. The internal lumen support of claim I further comprising a spring between said...support is a first internal lumen support and ftirther comprising a second internal lumen support **positioned** in a spaced-apart relationship with respect to said first internal lumen support.

37 The internal lumen support of claim 36 ftirther comprising a third internal lumen support **positioned** in a spaced-apart relationship with respect to said first and second internal lumen supports.

38 The internal lumen support of claim 37 further comprising a rod **connecting** said first, second and third internal lumen support, thereby creating a sphinteric shaper.

39 The...

...selected distance apart.

44 The internal lumen support of claim 36 further comprising a connector **connecting** said first and second internal lumen support.
45 The internal lumen support of claim 36...

...openings.

47 The internal lumen support of claim 46 wherein said end cap is detachably **attached** to said rod.
38

48 The internal lumen support of claim 45 further ...apart.

49 The internal lumen support of claim 45 further comprising at least one separator **located** around said rod.

50 The internal lumen support of claim 49 wherein said separator is a spring. 5 1. The internal lumen support of claim 50 wherein said spring is **located** between one of said support devices and an end of said rod.

52 The internal...

...support of claim 50 wherein said first internal lumen support is movable between a first **position** and a second **position** and wherein in said first **position** said spring is loaded and wherein in said second **position** said spring is relaxed.

53 The internal lumen support of claim 49 wherein said separator...

...to hold at least one of said internal lumen support,
a plunger at least partially **located** within said chamber and movable along a
longitudinal axis of said tubular member,
and an...

...internal lumen support to pass
therethrough when said internal lumen support is in said closed **position**
.

60 The delivery device of claim 59 wherein said opening within said tubular member is...

...a urethra.
40

65 The delivery device of claim 59 further comprising an orientation line **located** on an exterior surface of said tubular member and extending along a longitudinal axis of said tubular member.

66 The delivery device of claim 59 further comprising a plurality of **insertion** markers, said **insertion** markers **located** on an exterior surface of said tubular member.

67 The delivery device of claim 59...

...The delivery device of claim 59 wherein said internal lumen support is in said closed **position** within said chamber.

70 An internal lumen support for altering the configuration of a soft...

...second projection extending from said second end,
wherein said internal lumen support has a delivery **position** and a deployed **position** , and wherein said deployed **position** of said internal lumen support is **approximately** perpendicular to said delivery **position** of said internal lurnen support.

71 The internal lumen support of claim 70 wherein said first and second projections take the form of tissue **anchoring** elements.
41
72 The internal lumen support of claim 70 wherein said first and second
...second ends are configured to promote the ing-rowth of tissue.

79 A spacer for **placement** within the bladder neck of a patient during a partial ligation
procedure, the spacer comprising...

...82 The spacer member of claim 79 wherein said spacer member has a plurality of **insertion** markers.

83 The spacer member of claim 79 wherein said spacer member has an orientation...

...and wherein said internal lumen support is an internal urethral support.

86 A method of **treating** a dysftmction of the urinary tract, the method comprising the
steps of
(a) **inserting** a delivery device into a urethra;
43
(b) deploying an internal urethral support within the...
...urethral support is deployed to reshape the urethra when the urethra is in a rest **position** .

89 The method of claim 86 wherein said internal urethral support is deployed to treat urinary incontinence.

90 The **method** of claim 89 wherein said internal urethral support is deployed in a central portion of...

...comprising the step of(d) manipulating said internal urethral support to move from a delivery **position** within said delivery device to a deployed **position** within the urethra.

94 The method of claim 93 wherein said delivery **position** is a closed **position** and said deployed **position** is an opened **position** .
44

95 The method of claim 93 wherein said delivery **position** is a closed **position** and said deployed **position** is an opened **position** and wherein, when said internal urethral support is in said open **position** said internal urethral support is relaxed.
96 The method of claim 93 wherein, when said internal urethral support

is in said deployed **position** within the urethra, said internal urethral support is stretching a lateral wall of the urethra...

...The method of claim 93 wherein, when said internal urethral support is in said deployed **position** within the urethra, said internal urethral support is stretching a posterior wall of the urethra...

...The method of claim 93 wherein, when said internal urethral support is in said deployed **position** within the urethra, said internal urethral support is stretching and supporting a posterior wall of...

...The method of claim 93 wherein, when said internal urethral support is in said deployed **position** within the urethra, said internal urethral support is stiffening a posterior wall of the urethra...

...The method of claim 93 wherein, when said internal urethral support is in said deployed **position** within the urethra, said internal urethral support is strengthening a posterior wall of the urethra...

...The method of claim 93 wherein, when said internal urethral support is in said deployed **position** within the urethra, said internal urethral support is reshaping a rest **position** of a posterior wall of the urethra. 102. The method of claim 93 further comprising the steps of
45
(e) holding said internal urethral support in **place** by at least one projection extending into a wall of the urethra.
103. The method of claim 93 further comprising the steps of
(e) holding said internal urethral support in **place** by at least one projection extending through a layer of mucosa and into muscle, the...

...supports and said rod form a sphincteric shaper and said sphincteric shaper changes a rest **position** of the sphincter urethrae. 105. The method of claim 104 wherein said internal urethral supports...

...the step of
(d) positioning and deploying a second magnetic internal urethral support in a **position** within the urethra and opposite from said first magnetic internal urethral support. 107. The method...

...the posterior and anterior wall of the urethra with said magnetic internal urethral supports, thereby **placing** the posterior and anterior walls closer together.
109. The method of claim 89 further comprising...of claim I 1 4 wherein, when said internal urethral support is in a deployed **position** within the urethra, said internal urethral support is stretching a lateral wall of the urethra...

...of claim I 1 4 wherein, when said internal urethral support is in a deployed **position** within the urethra, said internal urethral support is stretching a posterior wall of the urethra...

...of claim I 1 4 wherein, when said internal urethral support is in a deployed **position** within the urethra, said internal urethral support is stretching and supporting a lateral wall of...

...of claim I 1 4 wherein, when said internal urethral support is in a deployed **position** within the urethra, said internal urethral support is stiffening a posterior wall of the urethra...

...of claim I 1 4 wherein, when said internal urethral support is in a

deployed **position** within the urethra, said internal urethral support is stretching an anterior wall of the urethra...

...The method of claim 114 wherein, when said internal urethral support is in a deployed **position** within the urethra, said internal urethral support is reshaping a **position** of a posterior wall of the urethra. 12 1. The method of claim II 4 further comprising the step of. (e) holding said internal urethral support in **place** by at least one projection extending into a wall of the urethra. 122. The method...

...comprising the step of:
(d) opening the urinary obstruction with the assistance of a spring **located** around a rod extending between said internal urethral support and a second internal urethral support...is deployed by the step of(d) rotating the internal urethral support fi7om a delivery **position** to a deployed **position** . 126. A method of promoting bladder neck closure with partial ligation to treat urinary incontinence, the **method** comprising the steps of
(a) **inserting** a spacer through a urethra into a bladder;
(b) threading a **suture** behind and around the bladder neck;
(c) tying said **suture** around the bladder neck;
(d) withdrawing said spacer. 127. The method of claim 126 wherein said **suture** is threaded behind the bladder neck using an endoscopic **suture** device. 128. The method of cláim 126 wherein said suture has an external urethral support **attached** thereto, said external urethral support being **placed** against an exterior surface of the bladder neck. 129. The method of claim 126 wherein said suture is **secured** with a **locking** device. 130. The method of claim 126 wherein said suture is cut after **securing** . 13 1. The method of claim 126 further comprising the step of repeating steps (a) through (d) to place a second **suture** around the bladder neck. 49,
132. The method of claim 126 wherein said **suture** is a band-like material. 133. The method of claim 126 further comprising the steps...

...method of promoting closing of a urethra with partial ligation to treat urinary incontinence, the **method** comprising the steps of
(a) **inserting** a spacer into the urethra;
(b) threading a **suture** behind and around the urethra;
(c) tying the **suture** around the urethra;
(d) withdrawing said spacer.
50
140. The method of claim 139 wherein said **suture** is threaded behind the urethra using an endoscopic **suture** device. 141. The method of claim 139 wherein said suture has an external urethral support **attached** thereto, said external urethral support being **placed** against an exterior surface of the urethra. 142. The method of claim 139 wherein said suture is **secured** with a **locking** device. 143. The method of claim 139 wherein said suture is cut after **securing** . 144. The method of claim 139 further comprising the step of repeating steps (a) through (d) to place a second **suture** around the urethra.
145. The method of claim 139 wherein said **suture** is a

37/3,K/73 **(Item 73 from file: 349)**
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Related to application

00744769 **Image available**
SYSTEMS AND METHODS FOR SOFT TISSUE RECONSTRUCTION
SYSTEMES ET PROCEDES DE RECONSTRUCTION DES TISSUS MOUS
Patent Applicant/Inventor:
ROSENBLATT Peter L, 25 Bruce Lane, Newton, MA 02458, US, US (Residence), US (Nationality)
WHIPPLE Dale E, 91 Tania Drive, E. Taunton, MA 02718, US, US (Residence), US (Nationality)
Legal Representative:
VINCENT Matthew P (et al) (agent), Foley, Hoag & Eliot, LLP, One Post Office Square, Boston, MA 02109, US,
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Detailed Description
Claims

Detailed Description
... diagnosis of paravaginal laxity is confinned. A soft tissue reconstruction according to these systems and **methods** may therefore be indicated.

An embodiment of an applicator for soft tissue fixation **devices** is depicted in Figure 26. The applicator 650 may be either be a disposable (multiple...
...In certain embodiments, the applicator 650 may be adapted for inserting serially a plurality of **fixation** devices. The fixation **devices** may be available in a cartridge or as a prepackaged unit for use with an...

...650 may possess an articulating joint 652 and a rotating knob 654 to facilitate the **insertion** of the tip 653 of the device into small or angulated spaces. In one embodiment, the articulation Joint 652 may permit the tip 653 to be directed at a **position** perpendicular to the target tissue. The shaft 656 of the instrument may also rotate, directed by the rotating knob 654, providing another method to assure proper placement of the **fixation device** . In other embodiments, articulation may be perfon-ned with a lever or a wheel 658 near the proximal end 660 of the applicator 650. A **lock** mechanism (not shown) may be included to

hold the instrument's articulable parts in their preselected **position** until altered by the operator. A handle 664 is provided to allow the operator to control the applicator 650, to **position** it in the anatomic region of interest and to direct the fixation **devices** into the tissue. After the applicator 650 has been **positioned** and has been **inserted** into an appropriate anatomic area to abut one of the tissues being **approximated** , the trigger 662 may be pulled to deploy an individual soft tissue fixation - 38 device. The next fixation **device** may automatically be brought into **position** for the subsequent firing. When the final fixation **device** has been **placed** , in one embodiment, the trigger 662 may no longer be capable of movement.

Claim

... for soft tissue reconstructive surgery comprising:

O

a soft tissue fixation device, wherein said fixation **device** **affixes** at least two intact

anatomic soft tissue structures;

and an applicator that inserts the soft tissue **fixation** **device** from a first anatomic structure into a second anatomic structure and fixatingly positions said soft tissue fixation **device** within said first and said second anatomic structures.

2 The system of claim 2, wherein...

...is suspended from said second anatomic structure by a positioning of said soft tissue fixation **device** .

3 The system of claim I wherein the first anatomic structure lies in contiguity with...

...a native anatomic state.

4 The system of claim 1, wherein the soft tissue fixation **device** further comprises a means for adjusting tightness of **affixation** of said first anatomic structure to said second anatomic structure after the soft tissue fixation **device** has been **positioned** .

5 The system of claim 1, wherein the soft tissue fixation **device** comprises a **screw** .

6 The system of claim 1, wherein the soft tissue fixation **device** comprises a ring.

7 The system of claim 1, wherein the soft tissue fixation **device** comprises an **anchor** .

8 The system of claim 1, wherein the soft tissue fixation **device** comprises a barb.

9 The system of claim 8, wherein the barb is flexible. - 41...

...system of claim 9, wherein the at least one flexible barb springs from a closed **position** to an open **position** when it is **positioned** within the second anatomic structure. I 1. The system of claim 9, wherein the at least one flexible barb is urged from the closed **position** to the open **position** by the applicator.

12 The system of claim 9, wherein the at least one flexible barb is urged from the closed **position** to the open **position** by proximally directed traction.

13 The system of claim 1, wherein the soft tissue fixation **device** comprises a **staple** .

14 The system of claim 13, wherein the applicator alters the shape of the **staple** after said **staple** is driven from the first anatomic structure into the second anatomic structure, thereby affixing said **staple** in said at least two anatomic structures.

15 The system of claim 1, wherein the soft tissue fixation **device** is coated with a substance capable of promoting epithelialization.

16 The system of claim 15...

...factor or adhesion ligand.
17 The system of claim 1, wherein the soft tissue fixation **device** is provided with a coating that stimulates tissue ingrowth.

18 The system of claim 1...

...to stimulate collagen deposition.

19 The system of claim 1, wherein the soft tissue fixation **device** fon-ned at least in part from a bioabsorbable.material. - 42 . The system of claim 1, wherein the applicator is adapted for inserting at least two soft tissue **fixation devices** simultaneously. 2 1. The system of claim 1, further comprising a remover to extricate the soft tissue fixation **device** from said at least two anatomic structures

22 The system of claim I wherein the soft tissue fixation **device** may be removed from the at least two anatomic structures by manipulation.

23 The system of claim 1, wherein the soft tissue fixation **device** comprises adjustable ratchets.

24 The system of claim 1, further comprising a **template** that **guides** a positioning of the soft tissue fixation **device** .
25 A method for soft tissue **reconstruction** comprising:
providing a soft tissue fixation **device** and an applicator,
identifying at least two anatomic structures suitable for coaptation, wherein coaptation is...

...stabilizing the at least two anatomic structures in surgical proximity,
driving the soft tissue fixation **device** from a first anatomic structure into a second
anatomic structure, and
engaging the soft tissue fixation **device** within the second anatomic structure.

26 The method of claim 19, further comprising
providing a remover for atraurnatically removing the soft tissue fixation **device** from the at
least two anatomic structures,
- 43 examining a position of the soft tissue **fixation device** within the first and the second anatomic structure to determine whether said soft tissue fixation **device** is **malpositioned** ,
and
employing the remover to remove the soft tissue fixation **device** that is **malpositioned** .
27 A method for supporting a soft tissue structure, comprising:
providing a soft tissue fixation **device** and an applicator,
identifying at least two anatomic structures physiologically adapted for supporting the soft...

...in 'uxtaposition to a second anatomic structure,
thereby to support the soft tissue structure, and
affixing the first anatomic structure to the second anatomic structure with the soft tissue fixation **device** **inserted** by the applicator.

28 The method of claim 27, further comprising
positioning a **template** dimensionally adapted for guiding a placement of the soft tissue

fixation device , and
directing the soft tissue fixation **device** into the first anatomic structure in accordance with the **template** .

29 The method of claim 27, further comprising examining a position of the tissue **fixation device** within the at least two anatomic structures and removing the soft tissue fixation **device** that is **malpositioned** .

30 The method of claim 27, wherein the soft tissue fixation **device** is selected from the group consisting of **staples** , **screws** , barbed **tacks** , and **anchors** . - 44

1 The method of claim 29, further comprising providing a remover to extricate the fixation **device** from the at least two anatomic structures, and employing the remover to remove the soft tissue fixation **device** that is **malpositioned** .

32 The method of claim 29, wherein the soft tissue fixation **device** that is **malpositioned** is removed by traction.

33 The method of claim 27, wherein the soft tissue structure comprises the rectum, wherein the first anatomic structure is a lateral **vaginal sulcus** and wherein the second anatomic I 0 structure comprises the ATFP or the levator **ani** .

34 The method of claim 27, wherein ...soft tissue structure is selected ftorn the group consisting of the bladder, the urethra, the **vaginal** vault and the **uterus** . 1 5 35. The method of claim 27, further comprising identifying at least one anatomic...

...ultrasound, laparoscopy and endoscopy.
36 The method of claim 27, further comprising guiding the fixation **device** into at least one anatomic structure by a modality selected from the group consisting of...

...scan, conventional radiology, ultrasound, laparoscopy, endoscopy, direct vision and intraoperative palpation.

37 A soft tissue **fastener** system, comprising
means for penetrating an intact outer wall of a first soft tissue
means for penetrating a second soft tissue, and
means for **affixing** said first soft tissue to said second soft tissue
- 45 . The system of claim 37, further comprising a means for detaching an **affixation** between
I=> 17
said first soft tissue and said second soft tissue without disturbing physiological integrity of said first and second soft tissues.

39 A method of surgical paravaginal **repair** , comprising:
providing a soft tissue fixation **device** ;
iding an **insertion** device adapted for inserting said soft tissue **fixation device** ;
provi I I 1
placing the soft tissue **fixation device** at least one of **vaginally** and laparoscopically
through the stapling device; and
approximating the superior **lateral sulci** to the ATFP without exposing the ATFP through a surgical incision in a vaginal **wall** .

40 A method for diagnosing a **pelvic floor** defect, comprising:

providing a **template** adapted for **insertion** in a **vagina** , wherein said **template** replicates
forces applied during a **paravaginal** repair,
inserting the template into the vagina, and
observing whether the pelvic **floor** defect is reduced. - 46
I / 21
FIG. IA
) 1fl
[2]
El /// -4]
F
E
FIG...

37/3,K/75 **(Item 75 from file: 349)**
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00556540 **Image available**
DEVICES FOR INVESTING WITHIN LIGAMENTS FOR RETRACTING AND REINFORCING THE SAME
DISPOSITIFS POUR EXAMINER DES LIGAMENTS AFIN D'ECARTER ET DE RENFORCER CEUX-CI

Patent Applicant/Assignee:
INLET MEDICAL INC,
CARTER James,
COOK John,
GABLER Robert,
JONES Lee,
Inventor(s):
CARTER James,
COOK John,
GABLER Robert,
JONES Lee,

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Fulltext Availability:
Detailed Description
Claims

Detailed Description
... OF INVENTION
The present invention is directed to a suturing method using an improved laparoscopic **surgical** instrument which permits a surgeon to pass **suture** without trauma through tissue while retaining the function of grasping the **suture** . The laparoscopic surgical instrument comprises a modified laparoscopic grasper wherein forceps jaws at the tip...
...by means of handles extending from a tubular housing with an enclosed reciprocating actuating rod **connected** with the handles. As contemplated in the present invention, scissor-type or syringe-type handles...

...either a knife-, chisel-, or cone-shaped tip when the jaws are in the closed **position** . These tips are configured such that they are needle sharp which is critical in reducing trauma and accompanying bleeding and further decreases tissue damage during the **suturing** procedure. Other tip configurations include curved and bent tips, which allow greater facility under certain conditions. Additionally, a **suture** probe **guide** delivering **guided** access to appropriate tissue layers for **suturing** is provided.

"US" version is BETTER
(US)6383199
6 OCT 1998, w/ C-I-P FILE DATES GOING BACK TO 1993

The method of the present invention to shorten and strengthen a ligament includes entering the person's body with a surgical tool having a sharp tip and bearing **suture** material, and **inserting** the tool into the ligament and pushing the **suture** material along the axial length of the ligament. Then the method includes pulling the **suture** from outside the ligament causing the ligament to retract along its length, and incorporating the **suture** material such that the ligament is retracted and reinforced. The resulting ligament is shorter, thicker...
...able to support internal organs such as a woman's uterus.

Rather than using only **suture** materials to shorten and strengthen connective tissue such as ligaments, tendons, etc., devices for investment...

...connective tissues are also contemplated. The devices of the present invention for such uses as **insertion** into the round ligament to better support a woman's uterus, include an elongate body having one or more spaced-apart **anchors** adapted to be fixed to the connective tissue in a retracted condition, to hold the...

...tissue in the retracted condition. The elongate body of the device may include a deployable **anchor** at the first end **inserted** into the ligament, and the opposing end of the device may be **attached** to a nearby fixed structure of the human body. Alternatively, both ends of the device may include one or more opposing **anchors** or scales adapted to firmly hold the ligament in the retracted condition.

Other alternate embodiments are contemplated, including a device having an elongate substantially rigid body adapted to be **screwed** into **place** inside the ligament in a retracted condition. Or the device may include an elongate body...coiled configuration to hold the ligament in a retracted condition. A device in combination with **suture** or glue could also be used to hold the ligament in the retracted state.

BRIEF...

...a side elevational view of the forceps jaw of FIG. 12 in a completely closed **position** .

FIG. 13a is a cross section of the forceps shown in FIG. 13.

FIG. 14a...

...diagrammatic sketch, partly broken away, of the tip of the surgical instrument in the closed **position** passing **suture** through tissue.

FIG. 14b is a diagrammatic sketch, partly broken away, of the tip of the surgical instrument in the open **position** for dropping the **suture** .

FIG. 14c is a diagrammatic sketch, partly broken away, of the tip of the surgical instrument in the closed **position** passing through tissue at the other side of the incision and picking up **suture** .
FIG. 14d is a diagrammatic sketch, partly broken away, of the tip of the surgical instrument pulling **suture** through muscle fascia and peritoneum.

FIG. 14e is a diagrammatic sketch, partly broken away, of the **suture** tied below the skin to complete closure.

FIG. 15 is a side perspective view of...

...curved tip for use in the present invention, the forceps jaws shown in the open **position** .

FIG. 16 shows the curved tip of FIG. 15 with the forceps jaws closed.

FIG...

...of the present invention with the curved tip shown in FIGS. 15 and 16 holding **suture** .

FIG. 18 shows a side perspective view of open forceps jaws **connected** to a straight tip.
FIG. 19 shows the forceps jaws of FIG. 18 in a closed **position** , showing the conical shape of the tip.

FIG. 20 shows a conical tip forceps with...

...the probe having a syringe-type handle.

FIG. 26 is a perspective view of the **insertable** grasping probe **guide** of the present invention having a longitudinal axis x.

FIG. 27 is a cross-sectional view of the **guide** taken along the line D --- D in FIG. 26 and FIG. 29.

FIG. 28 is a side elevational view of the **guide** shown in FIGS. 26 and 27.

FIG. 29 is a top plan view of the **guide** shown in FIGS. 26, 27, and 28.

FIG. 30 is a bottom plan view of the **guide** shown in FIGS. 26, 27, 28 and 29.

FIG. 31a is a diagrammatic sketch showing the **guide** of the present invention **placed** within the wound to be closed receiving the tip of a point of a surgical instrument received within a passageway carrying **suture** material.

FIG. 31b is a diagrammatic sketch of the **guide** shown in FIG. 31a with the surgical instrument releasing the **suture** material.

FIG. 31c is a diagrammatic sketch showing the **guide** of FIGS. 31a and 31b with the surgical tool being received in an opposite and adjacent passageway of the **guide** retrieving the **suture** material.

FIG. 32 is a top perspective view of an alternative embodiment of the probe **guide** shown in FIG. 26.

FIG. 33 is a cross section view of the probe **guide** of FIG. 32 taken along line E--E.

FIG. 34 is a top perspective view of an alternative embodiment of the probe **guide** shown in FIG. 32.

FIG. 35 is a cross section view of the probe **guide** of FIG. 34 taken along line F--F.
FIG. 36 is a side view of...

...37 is a view of entering a woman's body and pelvis, and showing the

suturing tool in a preperitoneal **position** .

FIG. 38 is a view of **inserting** the tool into the round ligament, and pushing **suture** along the axial length.

FIG. 39 is a view of exiting the ligament, and dropping the **suture** .

FIG. 40 is a view of withdrawing the tool without the **suture** .

FIG. 41 is a view of reinserting the tool into the round ligament, and pushing it along a second time without the **suture** .

FIG. 42 is a view of exiting the ligament, and picking up the **suture** .

FIG. 43 is a view of withdrawing the tool, and pulling the **suture** along the axial length of the ligament.

FIG. 44 is a side view of the shortened, thickened and reinforced ligament and properly suspended **uterus** .
FIG. 45 is a view of **attaching** the **suture** to a bone.

FIG. 46 is a front view of a retroverted uterus before the uterine suspension **procedure** .

FIG. 47 is schematic view of the steps of the uterine suspension **procedure** .

FIG. 48 is a front view of a mildly anteverted uterus after the uterine suspension **procedure** .

FIG. 49 is a view of a device having a deployable **anchor** for **insertion** into connective tissue.

FIG. 50 is a view of a device having a number of opposing scales for **insertion** into connective tissue.

FIG. 51 is a view of a coil-like device adapted to be **screwed** in, or alternatively to be extended out and released once inside connective tissue.

FIG. 52 is a view of a device including an **anchor** and a length of **suture** material.

- 7 FIG. 53 is a view of a device including a piedget and **suture** .

FIG. 54 is a view of a device **anch**ored with **suture** .

FIG. 55 is a view of a device **anchored** with biocompatible glue.

BEST MODE FOR CARRYING OUT THE INVENTION
MODE(S) FOR CARRYING OUT...

...providing a driving means 25 for driving forceps jaws 24 and 26 in a closed **position** through a patient's skin. Detachable means 27 comprise an elongated tube 30 concentrically sharing...

...to surgery by separating driving means 25 from detachable means 27 by loosening the knurled **screw** 34 on fixed handle housing 22, rotating the elongated tube 30 and forceps jaws 24...

...thereby frees actuating rod 36 and tube 30 from handle housing 22. By loosening thumb **screw** 35, movable handle or lever means 23 can be disassembled from fixed handle housing 22...
...the parts may be flushed, washed, and dried according to hospital procedures for stainless steel **surgical** instruments. A cleaning port 32 may be provided for ease in flushing the disassembled fixed...

...forceps jaw 24 in relationship to fixed forceps jaw 26 for grasping, carrying, or releasing **suture** during a laparoscopic operation. To open forceps jaw 24, the surgeon moves movable handle or...

...shape tip 42 operates as a sharp needle point that simultaneously grips and passes the **suture** through soft tissue. Referring to FIG. 4, chisel-shaped jaw 38 pivots open and closed...

...is critical in reducing trauma and accompanying bleeding and in decreasing tissue damage during the **suturing** procedure.

Common to the variously shaped jaw embodiments is a generally partial crosshatched interior jaw...

...jaw body 56, as shown in FIG. 11, which facilitates in grasping more securely the **suture** material 66 during **insertion** into tissue. In order to maintain the sharpness of the tip, a partial nonhatched area...
...hole 62. With this arrangement the small angle 74 accounts for the thickness of the **suture** such that, when the jaws are closed, a sharp tip is still defined with the **suture** grasped resulting from the clearance provided by small angle 74. Additionally, a spring 64 is provided which has one end **affixed** into jaw body 26 at a point near pivot-pin hole 62. 'Me spring 64 assists in more firmly grasping the **suture** material by adding a compression force resulting in a more positive grip when the jaws...

...as shown in FIGS. 13 and 13a. The spring 64 is especially useful in handling **suture** material that is large in diameter, therefore allowing for a wider range of **suture** sizes that can be used during surgery.

These features and their advantages in use will...

...more particularly appreciated when reviewing the following method of the present invention used to pass **suture** through soft tissues during endoscopic/laparoscopic 1 5 surgery for which the instrument 20 of...

...application the surgical instrument 20 is to be grasped by a skilled laparoscopic surgeon and **placed** for closure of punctured vessels in the muscular surface or for closure of the fascia...
...instrument 20 with the knife-shaped tip 54 of the present invention grasping and passing **suture** through soft tissue for closure of an incision 72. In FIG. 14a the surgeon grasps the **suture** material 66 with tip 54 and **inserts** instrument 20 carrying **suture** material 66 through the muscle fascia 70 and peritoneum 68 until the tip 54 is seen through the peritoneum by direct camera vision. Subsequently, the surgeon releases the **suture** 66 by opening jaw 50 and withdrawing the instrument 20 out of incision 72 as shown in FIG. 14b. In FIG. 14c the surgeon then takes instrument 20 and **inserts** the tip 54 through the muscle fascia 70 and peritoneum 68 opposite the first point of **insertion** , grasping the **suture** 66 with aws 50 and 52 and pulling the **suture** 66 carried and held by tip 54 outside incision 72 as shown by FIG. 14d whereupon **suture** 66 is tied below the skin to complete closure of incision 72 as shown by ...

...Although not shown, it may be envisioned in the above-described method that a second **surgical** instrument 20 may be **inserted** through the muscle fascia 70 and peritoneum 68 opposite the first point of **insertion** grasping the **suture** 66 with jaws 50 and 52 and pulling the **suture** 66 held by tip 54 outside incision 72 by either an assistant or the surgeon ...

...limitation, it has been shown that, by using the present invention during a laparoscopic-assisted **vaginal** hysterectomy, the total time required for the closure of the two 12 mm and one 10 mm trocar ports has been reduced from 15 minutes (as required by prior surgical **procedures**) to 3 minutes.

As shown in FIGS. 15 - 25, additional alternative embodiments of the present...

...the upper jaw. As shown in FIGS. 15 and 16, the slots 108, 110 are **positioned** toward the proximal end of the jaws 102, 104. As with the small angle 74, as shown in FIG. 12, the slots 108, 110 accommodate **suture** material 112 so that the two .aws 102, 104 may completely close and provide the...

...of the tip 100 provides the surgeon with a better means by which to grasp **suture** , especially inside the body cavity. The angle the curved tip 100 makes with respect to the probe's shaft 120 (FIG. 17) allows the surgeon to more easily grasp **suture** that has **positioned** itself alongside the curved tip 100. In contrast to a straight tip (such as that ...

...allows the surgeon to rotate the probe 122 in order to quickly grasp adjacently adjoining **suture** 112. If the **suture** material is present immediately adjacent to the curved tip 100, a straight-edged tip would...

...would have to flex the probe within the surgical wound in order to address the **suture** 112 with the tip. Additionally, the curved tip 100 allows the surgeon to grasp **suture** in tight confines having difficult angles.

As shown in FIG. 17 as well as F1GS...is freely pivotable with respect to the central stem 136. The thumb ring 138 is **connected** to a shaft 140 that communicates with the lower moving jaw 102. By moving the...

...do so, the cap 142 is removed; and a hose having a compatible fitting is **attached** to the cleaning port's Luer fitting 144. Cleaning or sterilizing fluid may be then...

...of the jaws 152, 154. As previously described, these oppositely opposed slots provide accommodation for **suture** material 160 so that the jaws may be completely closed without gap between them for better penetration through tissue.
FIG. 19 shows the straight tip 150 in a closed **position** carrying **suture** 160 between the jaws 152, 154 and the slots 156, 158. The lower moving jaw 154 articulates about a pin 162.

FTG. 21 shows a straight forceps tip 150 carrying **suture** 160, having the handle structure previously described in FIG. 17 and indicated by reference number...

...those shown in FIGS. 15, 16, and 20, allow the 1 5 surgeon to tie **suture** knots more easily and allow access to sites that would otherwise require repositioning of the probe's **insertion** point and allow the

surgeon to avoid awkward hand positioning.

FIG. 22 shows a probe...

...to be grasped (for possible extraction or positioning), the grasper tip 190 is opened and **situated** on either side of the tissue of interest. The grasper tip 190 is then closed...

...thumb ring 138. Once grasped by the tip 190, the tissue is then moved into **position** according to the surgeon's articulations of the probe 198.
The syringe-type handle design...instrument control is useful for general instrument manipulation and special surgical maneuvers such as - 11 **suture** tying.

Materials used to construct the devices set forth herein include surgical stainless steel and...

...is likewise true for retraction of kidneys and other structures during laparoscopic nephrectomy.

Intra-abdominal **suturing** , whether by closing of peritoneum or intra-abdominal knot-tying, has benefited from use of...

...and temporary and permanent fixations of hemia mesh. It is contemplated that many other surgical **procedures** will advantageously use the present inventive methods and instruments as described herein.

As shown in FIGS. 26 - 33, a specially adapted **guide** 220 can be used in the **suturing** procedure discussed above, and its application is demonstrated in FIGS. 31a - 31c. The **guide** 220 provides the surgeon a device and **methodology** for accurately and precisely positioning and removing the **suture** material 66 in or from the patient's body where desired.

The **guide** 220 has a longitudinal axis x shown in FIG. 26 and is generally symmetrical about...

...concave, radially disposed surface 226 which further assists the surgeon in gripping and holding the **guide** 220. The concave surface 226 may be smooth or knurled.

A top cylindrical recess 228...

...the annulus 224 exposes two entry holes 230 to generally linear passageways 232 through the **guide** 220. The passageways 232 are appositely adjacent, and each forms a diverging angle alpha of **approximately** 10' with the longitudinal axis x but can range over a number of angles less than 90'. Optimally, the angle is 9.6' for an overall **guide** 220 length of 2.7 inches. The entry holes 230 are **located** along a diameter line and are **approximately** 0.2 inches from center hole to center hole but may vary between 0. I...

...the - 12 index 254 with the cut of the wound to ensure that suturing takes **place** at **approximately** 90' to the sliced walls of flesh. The entire **guide** 220 can be integrally molded out of high-density polyethylene or other comparable material which...

...or her body fat composition. Ideally, the surgeon desires to reach a particular layer to **suture** which may vary from patient to patient.

Therefore, varying sized **guides** 220 are anticipated with the length L being different and ranging between 0.5 inches...

...length ranges between 1.5 to 4 inches.

It is also possible to use the **guide** 220 of the present invention with only one passageway 232; however, the surgeon would have to rotate the **guide** 220 180' to retrieve the **suture** material once the **suture** material was deposited.

As can be seen in FIGS. 31a - 31c, the **guide** greatly assists in the procedure described above for FIGS.

14a - e. More particularly, the **guide** 220 is **placed** with the distal end 240 through the skin incision, muscle, fascia, and peritoneum so that the finger distal tip 252 appears in the view of the laparoscope. The **guide** 220 is oriented so that the holes 230 in the **guide** 220 are in the caudad-to-cephalad **position** .

The fascial closure instrument 20 (or 122) is **inserted** with **suture** in its grasp through the cephalad hole in the **guide** 220 and observed to exit through the peritoneum by laparoscopic view.

The **suture** is then released and the instrument 20 (or 122) withdrawn from the **guide** 76. The instrument 20 is **placed** in the caudad hole of the **guide** and watched by laparoscopic view to exit through the peritoneum in the caudad **position** , therefore passing through fascia and peritoneum on the caudad side of the incision. The **guide** 220 is then withdrawn up on the shaft of the instrument 20, allowing the instrument free mobility to grasp the **suture** that had been left with the first passage.

The **suture** is withdrawn through the hole made by the instrument 20. The **guide** 220 is then withdrawn from the **suture** completely. The **suture** is then tied by standard techniques, thus encompassing the fascia and peritoneum in a mass closure under the skin.

The **guide** 220 allows the **suture** instrument through fascia and peritoneum and mass closure of all incisions greater than 5 mm and the identification of the **position** of a trocar **placement** for use in occluding a trocar site.

It also provides for **placement** in a trocar or other abdominal wall site where a vessel, such as an inferior epigastric, has been lacerated and allows passage of the instrument 20 for **suturing** of tissue around the vessel to occlude the vessel and stop bleeding and for fascial by varying the length of the tool and the angle of the **guide** holes. By varying the tip length and the length of the overall **guide** 220, visualizing the **guide** 220 itself, and **placing** the **guide** properly in incisions intra-abdominally, closure of wounds in an individual of any weight is made possible.

By providing for the tip design, visualization of the **guide** 220 through the fascia and peritoneum is possible by laparoscopic visualization, for repair of vascular...

...surgical instruments that do not maintain a straight or Uear configuration could not use the **guide** 220 with its long, straight passages.

- 13 Alternative embodiments to the **suture guide** shown in FIGS. 26 et seq. are shown in FIGS. 32 - 35.

A first alternative embodiment is shown in FIGS. 32 and 33 where the **suture guide** 260 has a slot 262 allowing passage of the surgical instrument through the **guide** and into the flesh to be **sutured** . The top 264 of the slot 262 provides the **suture** and surgical instrument with access to the surgical wound while the side 266 of the slot 262 has the adjacent flesh ready for **suturing** by the surgical instrument.

In most other aspects, the **suture guide** shown in FIG. 32 is similar to that as shown in FIGS. 26 et seq...

...to the longitudinal axis x and can allow a surgeon to more easily manipulate the **suture guide** 260.

The cross section view shown in FIG. 33 shows the central supporting portion 268 which **guides** the **suturing** surgical instrument to the adjacent flesh of the surgical wound. One advantage of the embodiment shown in FIGS.

32 and 33 is that **suturing** surgical instruments having bent tips or the like (such as those shown in FIGS. 15, 16, and 20) may realize the advantages of using a **suture guide** that might otherwise be prevented if the passage through which the **suturing** surgical instrument had to pass could not accommodate the bent, or curved, tips.

Similarly, a second alternative embodiment of the **suture guide** shown in FIGS. 26 et seq. is shown in FIGS.

34 and 35. Like elements...

...and 33, a top slot 264 is present; however, the exit holes 242 are maintained. **Guide** barriers 270 are present in the alternative embodiment shown in FIGS. 34 and 35. The **suture guide** 272 may still allow **suturing** surgical instruments such as those in FIGS. 15, 16, and 20 to use a **suturing guide** ; however, the **guide** barriers 270 allow the surgeon more guidance during the insertion process of the **surgical** instrument into the **suture guide** 272.

Now referring to FIGS. 36 - 48, a method may be described for **suturing** ligaments within a person's body using the laparoscopic, **suture** passer instrument 20. In particular, the procedure described is for retracting and reinforcing the ligament attached to a woman's **uterus** , to reposition and stabilize the uterus to eliminate pain associated with its misalignment. Patients with...

...uterus 302 (See FIGS. 36 and 46). If the uterus 302 can be suspended and **placed** in its proper **position** , these pains may resolve. Elevating the uterus 302 improves venous drainage and improves uterine drainage...

...small skin incision (not shown) is made, overlying the area of the inguinal canal. Permanent **suture** material 306 is then introduced using the needle-point **suture** passer 20 through the small skin incision, and passed through a first point 304 in...

...70, but not through the peritoneum, or broad ligament 68, in order to introduce the **suture** 66 within the preperitoneal space overlying the round ligament 308. As shown in FIG. 38, the needle-point **suture** passer 20 with the permanent **suture** 306 is passed through the preperitoneal

space and into the round ligament 308, preferably at its thinnest section where it is **attached** to the peritoneum 68.

Referring to FIG. 39, **approximately** one to two centimeters from the uterus 302 the needle-point **suture** passer 20 exits at a first point from the round ligament 308 with the **suture** 306. The **suture** 306 is dropped, and the needle-point **suture** passer 20 is withdrawn from the abdominal cavity (see FIG. 40). The **suture** passer 20 (without **suture**) is reintroduced through the same skin incision (not shown) at a second point 310 in...

...be created to fix the suspension (See FIG. 44).

14 FIG. 42 shows needle-point **suture** passer 20 being passed along the round ligament 308 until a second point one to two centimeters from the uterus 302 is reached. The needle-point **suture** passer 20 then grasps the **suture** 306 and retrieves it within the round ligament 308 (FIG. 43). Then, the needle-point **suture** passer 20 is used to pull the truncated and thickened round ligament 308 within the...

...shortened, and is used in this manner to support the uterus 302 in a neutral **position** . The opposite side was previously truncated and suspended with this **technique** , the **suture** similarly applied externally under the skin and above the fascial bridge 312 that was created the suspension is shown in FIGS. 44 and 48, with the uterus 302 well **placed** in a neutral or mildly anteverted **position** . In this manner, venostasis will not occur, collision dyspareunia will not be experienced, and menstrual flow will be easier. The preperitoneal uterine suspension using the needle-point **suture** passer 20 is simple to perform, efficacious, and of great benefit to patients.

Besides using the fascial bridge 312 to **attach** the **suture** material 306 to the peritoneum, other methods of **fixing** ligaments are also contemplated. For example, ligaments reinforced with suture may be **attached** to any anatomical **anchoring** point 314 such as a bone 316, or a medical device 318 **anchored** to a bone 316. See FIG. 41A, Although the above procedure for **suturing** ligaments describes repositioning and stabilizing a woman's uterus, other applications are contemplated. For example, the new methods may have application in certain knee surgeries, and in breast-lift **procedures** .

Now referring to FIGS. 49 - 53, a number of devices for investment into connective tissues such as ligaments may be described. These devices once **inserted** into ligaments may serve to retain the ligaments in a retracted condition, thereby better supporting organs in **place** , better **connecting** particular extremities of bones, etc.

The devices reduce the amount of **suturing** and other manipulation required in and around connective tissue to accomplish the retraction/reinforcement procedure...

...a braided cable. At one end of the braided cable 412 is a deployable first **anchor** member 414, and at the opposing end is a second **anchor** member 418. The deployable first **anchor** member 414 preferably consists of a pair of folding **anchors** 415 pivotally **attached** by a pin 416. The folding **anchors** 415 are able to pivot little more than about 90' or less from the axis of the length of braided cable 412. In FIG. 49 the folding **anchors** 415 are shown partially deployed. The second **anchor** member 418 preferably consists of a fascial **lock** washer **anchor** , including a retaining washer 419 having a pair of tabs 421. The tabs 421 of...

...retaining washer 419 are securable to the braided cable 412, and upon installation the second **anchor** member 418 bears against the patient's fascia F.

Having described the structure of the device 410, it is now possible to describe its use. The device 410 is **inserted** through the fascia F into connective tissue CT, led by the deployable first **anchor** member 414 and the braided cable 412. Upon the device 410 reaching an appropriate **location** in the connective tissue CT, the folding **anchors** 415 are deployed and **locked** , and the braided cable 412 is pulled opposite the direction of **insertion** . The folding **anchors** 415 become lodged in the connective tissue CT and the pulling force causes the connective...

...the elongate body 432.

1 In use, the device 430 including the sheath 436 is **inserted** into connective tissue CT. A portion of the sheath 436 is removed, and the exposed...

...nearby connective tissue CT. The device 430 maintains the connective tissue CT in the retracted **position** without use of **sutures** .

Referring to FIG. 51, shown is a coil-like device 440. The device may include a substantially rigid elongate body 442 which may be **screwed** into **place** inside connective tissue CT. That is, the elongate body 442 is rotated and advanced into...

...be extended or stretched or temporarily deformed into a substantially straight configuration (not shown), and **inserted** into connective tissue CT. Next, the elongate body 446 is released from the extended configuration...

...and strengthened.
Moving along to FIG. 52, shown is a device 450 including a deployable **anchor** 452 preferably fabricated of Teflon@ covered with felt, and a length of conventional **suture** 454. The device 450 is preferably delivered inside connective tissue CT by a plunger P, and then the device is released from the plunger P and the **anchor** 452 lodges itself into the connective tissue CT. The opposing end of the **suture** 454 may be pulled opposite the direction of **insertion** causing the connective tissue CT to gather and shorten. Then the **suture** 454 is tied off on the patient's fascia F or other **anchoring** structure (not shown).

FIG. 53 shows a device 460 including a pad or pledget 462 preferably fabricated of felt-covered Teflon@, and conventional **suture** 464. The pledget 462 is preferably **attached** to the exterior of connective tissue CT by the **suture** 464, which is routed in the connective tissue CT, through the pledget 462, and out back through the connective tissue CT. The **suture** 464 is pulled opposite the direction of **insertion** and tied off on the patient's fascia F or other **anchoring** structure.

FIG. 54 shows use of a device 470 including an elongate body 472. Conventional **suture** 474 at opposing ends of the elongate body 472 holds the connective tissue CT in...
...486 that initially covers all of the elongate body 482.

Once the device 480 is **inserted** and the connective tissue CT is brought into the retracted condition, the sheath 486 is...

...state even after the breakdown of the fibrin 484.

- 16 It is understood that the **exemplary** methods described herein and shown in the drawings represent only presently preferred embodiments of the...

...different applications.

INDUSTRIAL APPLICABILITY
It is an object of the invention is to provide a **surgical** method for the closure of a **surgical** incision under direct camera laparoscopic vision of the surgeon, and the closure that is accomplished...

...or other lacerations of vessels in the outer (or abdominal) wall that may occur with **placement** of the laparoscopy trocars.

Another object of the invention is to provide a laparoscopic instrument ...

...manner similar to a needle driver without the requirement for the needle itself in passing **suture** easily through the fascial and peritoneal surfaces and for retrieving the **suture** for completing the **suture** procedure in a rapid, safe, and visualized manner.

It is another object of the invention to provide a **guide** to accurately and consistently restrain the **position** and angle of **insertion** of a laparoscopic instrument to provide for proper placement and retrieval of **suture** material at a predetermined **location** within the body.

Accordingly, it is an objective of the present invention to provide a method associated with an improved **surgical** instrument of the standard laparoscopic-type grasper that better suits the needs of a surgeon when **suturing** closed a surgical incision. In addition, it is the objective of the present invention to allow the passage of **suture** through tissue in order to suture or ligate vessels, **approximate** tissues, and perform all **suturing** that would require a separate needle driver in laparoscopic surgery.

Another object of the invention is to provide a method of laparoscopically **inserting** a **suture** within a ligament in a person's body, causing the ligament to retract along its...

...the ligament.

Still another object of the invention is to provide a method of laparoscopically **suturing** the round ligament that supports a woman's **uterus** to shorten and strengthen the **ligament** to reposition and stabilize a misaligned uterus.

Finally, still another object of the invention is to provide a method of laparoscopically suturing the round ligament that supports the woman's **uterus** and **anchoring** the same to a bone, to reposition the uterus.

Another object of the present invention...

...a retracted condition.

- 17 Another object is to provide such a device adapted to facilitate **insertion** into connective tissue and adapted to firmly hold the connective tissue once retracted.

Another object...

...inside connective tissue.

Another object is to provide such a device that need not be **sutured** into **place** inside the connective tissue.

The improvements afforded by this instrument, and the methods and devices ...

Claim

A device for **insertion** into connective tissue of a human being comprising: an elongate body having at one end a first **anchor** member adapted to be fixed to the connective tissue in a retracted condition, and having at an opposing end a second **anchor** member adapted to be fixed
to another structure of the human body;
whereby the connective...

...the retracted condition by the device.

2 The device of Claim I wherein the first **anchor** member is deployable in fixing to the connective tissue in the retracted condition.

3 The device of Claim 2 wherein the first **anchor** member is foldable in deploying.

4 The device of Claim I wherein the elongate body is fabricated of a braided cable material.

5 A device to be **inserted** into a ligament of a person comprising:
a cable having a first **anchor** including unfolding members for **attachment** to the ligament in a gathered state, and having a second **anchor** **attachable** to some other part of the person's body such that the ligament may be **secured** in the gathered state by the device.

6 A device for **insertion** into connective tissue of a human being comprising: an elongate body having a pair of spaced-apart **anchor** members, the **anchor** members adapted to
be fixed to the connective tissue in a retracted condition;
whereby the...

...by the device.

7 A device of Claim 6 wherein each of the pair of **anchor** members comprises a plurality of protruding scales arranged in a direction generally opposite the protruding scales of the other **anchor** member.

8 The device of Claim 7 further comprising a sheath **inserted** with the elongate body and removed once the elongate body is in **place** .

9 A device to be **inserted** into a ligament of a person comprising:
a body having a pair of **anchors** at opposing ends, the **anchors** fixable to the ligament in a gathered state, each of the **anchors** including a set of protr-uding scales arranged in a generally opposite direction from the protruding scales of the other **anchor** ;
- 19 a sheath covering the body but removable once the body is in **place** inside the ligament, such that the ligament may be **secured** in the gathered state by the device.

10 A device for **insertion** into connective tissue of a human being comprising: an elongate substantially rigid body adapted to be **screwed** into **place** inside the connective tissue in
a retracted condition;
whereby the connective tissue may be held firmly in the retracted condition by the device.

11 A device for **insertion** into connective tissue of a human being comprising: an elongate body extendable to a substantially...

...may be held firmly in a retracted condition by the device.

12 A device for **insertion** into connective tissue of a human being comprising: a deployable **anchor** **attachable** to the interior of the connective tissue in a retracted condition; a length of suture for **connecting** the deployable **anchor** through the connective tissue to a fixed
structure of the human body;
whereby the connective...

...may be held firmly in the retracted condition by the device.

13 A device for **insertion** in and around connective tissue of a human being comprising: a pledget **attachable** to the exterior of the connective tissue in a retracted condition; a length of **suture** for **connecting** the pledget through the connective tissue to a fixed structure of the
human body;
whereby...

...may be held firmly in the retracted condition by the device.

14 A device for **attachment** to connective tissue of a human being comprising:
an elongate body fabricated of an interwoven fabric;
biocompatible glue deposited at a plurality.of **locations** on the elongate body; whereby the connective tissue may be held firmly in a retracted condition by the device.

15 The device of Claim 10 further comprising a sheath cover **inserted** with the elongate body removed
once the elongate body is in **place** ,

37/3,K/78 **(Item 78 from file: 349)**
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SYSTEME DE FIXATION DES TISSUS
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WALSHE Christopher J,
Inventor(s):
WALSHE Christopher J,
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Detailed Description
Claims

Detailed Description
... operatively adjustable transvaginalsacrospinous-colpopexy procedure as follows. The patient is placed in a dorsal lithotomy **position** after undergoing general or spinal anesthesia. This procedure may be performed using local anesthesia for...

...conditions that may be complicated by either spinal or general anesthesia. A weighted speculum is **placed** in the posterior vault. A Sims retractor is **placed** anteriorly. The cuff apex is visualized if the uterus and cervix have been removed. In the lateral **vaginal** fornices, a 0 1.0 centimeter (cm) **vaginal** mucosa incision is made, and a 1-2 cm2 area of **vaginal** mucosa undermined at these sites. This reveals the underlying submucosal **vaginal** -supportive tissue. Tissue-anchor delivery device I is **placed** into the surgeon's hand and advanced into the **vagina** . The tissue- **anchor** delivery device 1 with a loaded tissue **anchor** 20 is advanced up the **vagina** and punctures the **vaginal** tissue through the lateral fornices of the **vagina** on the patient's right side directly through the area which was previously undermined. Tissueanchor sacrospinous ligament. The chosen anchor 20 depends on the surgeon's desires.

Anchor 20 may be adjustable or non-adjustable. Viewing the embodiments shown in Figures 16a-16h or Figure 17, adjustable tissue **anchors** 20 are used as follows. Anchor 20 is positioned as previously described, transfixing the lateral vaginal cuff apex to the **sacrospinous ligament** . Delivery device 1 is then removed. This leaves the adjustable shaft 120 in anchor 20 trailing from the **lateral vaginal** apex into the **vaginal** canal. A 1 5 cm' "porcupine" button 62 is then advanced onto shaft 120 and ratcheted into **place** using the interleaving members 303, 304 or

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ratcheting devices 140, 150 **positioned** on shaft 120 and in some instances using the interleaving members (fingers 402) positioned in center hole 404, thereby opposing the lateral **vaginal** cuff apex to the **sacrospinous ligament** . The **vaginal** cuff apex may be clasped or **sutured** alternatively to **anchor** 20. The same procedure is carried out on the opposite side. This suspends the **vaginal** cuff apex to the sacrospinous **ligament** either unilaterally or bilaterally. The trailing end of shaft 120 may be used for adjusting the **vaginal** cuff tension postoperatively and then trimmed flush with **anchor** body 99 when the appropriate tension is achieved. If the surgeon does not want a foreign body in the **vagina** , a standard adjustable tissue **anchor** 20 could be used, the **vaginal** cuff apex **sutured** to **anchor** 20, and **vaginal** suspension tension adjusted postoperatively to ensure patient comfort.

The **vaginal** mucosa is closed using either running- or interrupted-absorbable sutures over button 62 at the lateral **vaginal** cuff apices. In addition, button 62 may be **sutured** to the submucosal **vaginal** tissue along its circular perimeter before closure of the **vaginal** mucosa to ensure its appropriate fixation in the tissues. The lateral circular rim of button...

...appropriate draping to ensure sterile technique. The patient should also receive pre-operative prophylactic antibiotics, **approximately** one to two doses, and one to two doses postoperatively after closure of the **vaginal** mucosa to prevent postoperative infection from a foreign body.

This procedure obviates the need for...

...sacrospinous ligament fixation using the tendon sheath punch, or the hook-like suture carriers. Other **vaginal** vault suspension procedures require a more extensive dissection of the posterior **vaginal vault** and submucosal tissue. This more extensive dissection can result in serious hemorrhage. The procedure is done with a minimal amount of **vaginal** dissection-- **approximately** 4 cm' divided at two locations.

There is also minimal manipulation of the sacrospinous **ligaments** and surrounding tissue.

This procedure requires only a single puncture of the **sacrospinous ligament** . The operative time Adjustable Tissue **Anchor** An embodiment of an adjustable **anchoring** system is shown in Figures Sa-8c. Figure 8a illustrates an **anchor** 20 comprising a body 99 having a hollow chamber I 00 therein and a shaft 120 **insertable** within body 99. Shaft 120 is sized to be at least partially **insertable** into hollow chamber 100 and moveable relative to hollow chamber 100. Hollow chamber 100 may...

...or any other suitable shape.

The end of shaft 120 opposite tip 130 has an **attachment** member 23 **attached** thereto or constructed as part thereof. Hollow chamber 1 00 has a barb end 1 01 with at least one barb 1 02 **positioned** thereon. Barb 102 resists removal of **anchor** 20 from a tissue after anchor 20 has been **inserted** into or through tissue. Barb end 101 may be a variety of shapes but is easily **insertable** into tissue, generally having a sharp end 125 and a collapsible barb 102 for use...

...as previously described.

Viewing Figure 8c, body 99 may also have a ratcheting device 701

positioned on body outer walls 703 distal from barb end 101. Ratcheting devices 701 may comprise...

...62. Alternatively, tissue-retaining device 27 may comprise a washer-like structure that snaps or **clips** onto shaft 120 where desired. Though not shown, body 99 may also have a stop...

...from barb end 101 to prevent the body 99 from inserting completely through the desired **anchoring** tissue.

Viewing Figures 5a-5c, the interior walls 121 of hollow chamber 100 may have...

...indentations or other shapes designed to interlock or interleave with a second ratcheting device 150 **located** on exterior of shaft 120 (such as interlocking male and female threads, indentations and corresponding... devices or their materials of construction will vary the load-support capability of a particular **anchor** 20.

Ratcheting devices 140, 150 create a two-way ratcheting-type mechanism that positions shaft...

...desirable that shaft 120 have a ball bearing 15 or other pivotally rotatable mechanism 14 **located** in **attachment** member 23 as shown in Figures I Oa and I Ob.

Mechanism 14 allows shaft 120 to turn independently of the bottom of shaft 120 where **attachment** member 23 is located. Mechanism 14 prevents twisting of **sutures** , slings, or other devices **attached** to **attachment** member 23. This twisting may occur during later tension adjustments, either intra- or post-operative.

Anchor 20 is set by first setting outer hollow chamber 100 and then shaft 120 with...

...s hand or with a delivery device 1. A delivery device I is preferred because **anchor** 20 may be relatively small. Viewing Figure 12, delivery device I may comprise a housing 2 and finger grips 3, but other previously-described embodiments may also work.

Alternatively, **anchor** delivery device I may include a hollow barrel portion 7 wherein at least a portion of shaft 120 is **positionable** therein. Hollow barrel portion 7 has a lip section or edge 300, sized to fit within hollow chamber 100. Though not shown, a stop member may be **positioned** on body 99 to prevent body 99 from being deployed completely through tissue.

Though not shown, delivery device 1 may optionally include a plunger 5 slidably **positioned** in hollow barrel portion 7. Inclusion of a plunger 5 in the embodiment of Figure...

...2 may have a hollow barrel portion 7 that is adapted to have anchor 120 **positioned** at least partially therein. Hollow barrel portion 7 should have a sharp end 125a adapted...be later described. Though not shown, housing 2 may also have a projecting ridge 60a **located** on the external side of hollow barrel portion 7 to act as a stop 60...

...used herein, upward and downward shall indicate movement substantially along the central axis cc of **anchor** 20 or housing 2 as shown in the Figures. Figure 15 illustrates an exploded view of the invention that

shows how adjuster cylinder 90 **inserts** into hollow chamber 100. Viewing Figure 15, adjuster cylinder 90 is a hollow tube having...

...Figure 18a, pelvis 600 is shown from a retropubic view. Cooper's ligament 602 is **located** on pelvis 600. **Sutured** to Cooper's **ligament** 602 is **anchor** 20, which has a hollow portion 66 extending therethrough. Shaft 120 inserts through **anchor** 20 and is shown exiting skin surface 601. **Anchor** 20 may be configured with one or more **suture** holes 67 that allow anchor 20 to be **attached** to Cooper's ligament 602. In this embodiment, **anchor** 20 lacks a barb 102. Shaft 120 **inserts** through hollow portion 66. Shaft 120 is adjusted using a shaft 120 having threads 68 (see Figure 18c) corresponding to threads **position** in the hollow portion 66, or by **placing** corresponding interleaving members or ratcheting devices 140 within hollow portion 66 and corresponding interleaving members...

...is the same device as shown in Figure 18b, but shaft 120 has threads 68 **positioned** thereon allowing shaft 120 to rotatably engage corresponding threads on the interior walls of hollow portion 66. **Attachment** member 23 rotatably **attaches** to shaft 120 and is shown as a ball and socket 15. Figure 18d illustrates an embodiment wherein **anchor** 20 has multiple hollow portions 66 so that two shafts 120 can engage **anchor** 20.
Examples of use of adjustable tissue **anchor**
Referring to Figures 16a-16g, one of the procedures where the adjustable **anchor** is advantageous is the retropubic bladder neck suspension or retropubic Goebell-Stoeckel sling **procedure** . In this procedure, it is necessary to support the neck of the bladder through the use of a sling. The following application will demonstrate the use of the adjustable tissue **anchor** in this procedure, using two **anchors** : one non-adjustable **anchor** and one adjustable **anchor** . If the sling is to be **tacked** to the bladder neck, it is desirable to use two adjustable **anchors** . The procedure could be performed transvaginally or by laparotomy.

The surgeon first sets a non-adjustable **anchor** into a suitable connective tissue on one side of the bladder neck, Cooper's Ligament...

...or rectus fascia using the procedure(s) previously described. Anchor 20 may have a sling **attached** thereto by **sutures** . The sling is suspended under the urethra and fixed with sutures. The surgeon **attaches** a second adjustable **anchor** to the other end of the sling (by use of **sutures** or by use of a tissue clamp 52 as **attachment** member 23 on shaft 120) and loads the adjustable **anchor** 20 onto delivery device 1.
Alternatively, the adjustable tissue **anchor** 20 shown in Figures 18a-18c could be **sutured** to Cooper's Ligament 602, rectus fascia 603, or tendon bilaterally and subsequently adjusted postoperatively. This is accomplished using ratcheting devices 140, 150 ratcheted or thread and **screw** adjustment mechanism (i.e., interleaving members). The surgeon proceeds to set adjustable anchor 20 into a suitable **location** on the other side of the bladder neck using a delivery device 1 as shown...

...Figures 5a-5c.

Viewing Figures 16a-16g, delivery device 1, with the tissue anchor 20 **located** therewithin or thereupon, is **positioned** next to the area where **attachment** is desired. Delivery device 1 is then advanced forcing shaft tip 130, and the sharp...

...via the opening created by body 99. Body 99 and shaft 120 then penetrate

and **insert** through the rectus fascia 603 (tendon or other desired tissue), until barbs 102 are **located** in the soft subcutaneous tissue between the rectus fascias and the skin surface 601 and deploys. Shaft 120 trails from the tissue into which **anchor** 20 is embedded. At this point, delivery device 1 may be removed (if desired), and **anchor** 20 may be **anchored** at the inferior border of the rectus fascia 603 or underneath the rectus fascia 603...the abdominal wall downward, forcing shaft 120 through skin surface 601.

In another method, the **surgeon** **locates** the exit point of shaft 120 by pressing the abdominal wall until it contacts shaft...

...shaft 120 and removes pressure on the tissue and abdominal wall, thus fully deploying adjustable **anchor** 20. If this particular procedure is followed, shaft tip 130 need not be adapted to penetrate skin surface 601.

Delivery device I and **anchor** 20 shown in Figure 12 or 15 may deploy in this fashion.

Yet another method...

...skin surface 601, it is held above skin surface 601, and the tension on the **sutures** or sling is adjusted by pulling or pushing shaft 120, using adjuster cylinder 90 to...

...is removed, and the interleaving members/ratcheting devices 140, 150 engage, fixing shaft 120 in **place** . Shaft 120 is left trailing above skin surface 601 for further postoperative adjustment.

Viewing Figure...

...100, ratcheting devices 140, 150 (interleaving member 303, 304) are disengaged using adjuster cylinder 90 **inserted** into hollow chamber 100 between shaft 120 and interior walls 121 (see Figure 5a) of...

...99. Alternatively, when shaft 120 first protrudes from the incision, adjuster cylinder 90 may be **positioned** through the abdominal wall (see Figure 16g). When **anchor** 20 fully deploys, adjuster cylinder 90 is removed, and shaft 120 is left trailing through...

...using a twoplunger delivery device 1 shown in Figure 13. Initially, delivery device 1 is **positioned** adjacent to the area to be **anchored** and housing 2 and hollow body portion 7 pushed upward penetrating the tissue (note the...

...adapted to penetrate a tissue). Once sharp end 125a is properly positioned for deployment of **anchor** 20, (generally above the surface of the penetrated tissue), the surgeon will deploy at least...a hemostat. Pressure is removed from the abdominal wall, delivery device 1 is removed, and **anchor** 20 is fully deployed. Shaft 120 is exposed above skin surface 601 and barb 102...

...The surgeon may now pull (or push) on shaft 120 to raise (or lower) the **attached** sling until the sling is properly **positioned** under the bladder neck with suitable tension. Upward movement of shaft 120 may be difficult...

...140 and 150 (interleaving members 303, 304). When resistance is a problem, the surgeon may **position** adjuster cylinder 90 around shaft

120, push adjuster cylinder down over shaft 120 through skin...

...90 contacts and disengages first and second ratcheting devices 140, 150 (interleaving members 303, 304) **located** within body 99. Adjuster cylinder 90 eases resistance. When the sling is properly tensioned, adjuster...

...to assist in later adjustments. Tension adjustments may be gauged by having indicia markings 80 **placed** on shaft 120 (see Figures 16a- I 6h and Figure 18b).

The exposed end of...
...150 (or interleaving members 303, 304) by adjusting the shaft 120 of the tissue anchor **protruding** through the abdominal **skin** incrementally, as described above. The patient could be brought back one to several weeks later 99. **Anchor** 20 is now once again substantially fixed in **position** .

The patient's progress is followed, and when a surgeon believes that appropriate tension has been **placed** , shaft 120 is cut below skin surface 601. This is done with a hollow needle...

...and cuts shaft 120 in the subcutaneous tissue at the junction with body 99, leaving **anchor** 20 behind with the sling at the appropriate tension.

Alternatively, the exposed portion of the...

...17 and 18c-d, adjustment of tissue or sling tension is accomplished by rotation of **anchor** shaft 120 clockwise or counterclockwise (for increasing or decreasing tissue tension respectively) along the 120 axial shaft. This moves shaft 120 up or down, through body 99 **secured** to or within tissue by the action of corresponding threads 801 on shaft 120 and ...
...trailing through the skin or tissue could be trimmed as previously described with the ratcheted **anchor** 20. Figure 17 illustrates a similar **anchor** 20 to the one used in Figures 16a-16g, except the interleaving members on this...

...using interleaving threads 801, 802, however, it is desirable that shaft 120 freely rotate while **attachment** member 23 does not. For this reason, **attachment** member 23 connects to shaft 120 using a ball and socket joint 15.

Figures 16a...

...a series of drawings depicting one particular embodiment of an adjustable tissue anchor 20 being **positioned** within a tissue. Figure 16a illustrates anchor 20 **placed** against the underside of the rectus fascia 603. Delivery device 1 includes shaft 120 having first interleaving members 303 (or ratcheting devices 150) on its exterior and an **attachment** member 23. Shaft 120 is **positioned** within adjuster cylinder 90. Adjuster cylinder 90 and shaft are **positioned** within hollow chamber 1 00. Hollow chamber 1 00 has second interleaving members 304 (or ratcheting devices 140) **positioned** on its interior walls 121 for interleaving with first interleaving members 303 on shaft 120...
...a set of deployable wings.

Surrounding barbs 102 is a sleeve 96, which is slidably **positioned** over barbs 102 to keep barbs 102 from deploying before they **insert** into a tissue.

Viewing Figure 16b, **anchor** 20 begins to penetrate the rectus fascia 603. The first penetration may occur by cutting edge 90b of adjuster cylinder 90, by sharp end 125 of **anchor** 20, or by both as shown. Viewing Figure 16c, barb 102 penetrates the rectus fascia...

...the subcutaneous tissue and deploys.

Viewing Figure 16d, the surgeon pushes adjuster cylinder 90 or **anchor** shaft 120 to advance cylinder 90 against and through skin surface 601. Alternatively, cylinder 90...

...where shaft 120 has been pushed through the protruding adjuster cylinder 90 while in the **position** shown in Figure 16d.

Viewing Figure 16f, the adjuster cylinder 90 has been removed by a surgeon by withdrawing it away from skin surface 601. A button 62 has been **positioned** relative to shaft 120 and interleaving members 401 on shaft 120 engage interleaving members 402 in center hole 404 of button 62. The interleaving members 401, 402 **affix** button 62 to shaft 120. As now depicted, **anchor** 20 is fully set, and barbs 102 resist downward displacement. Upward displacement is resisted by button 62. Shaft 120, however, protrudes through **skin** surface 601 and may be pulled to increase tension, or pushed to release tension on any device **attached** to **attachment** member 23.

Figure 16g illustrates an adjuster cylinder 90 having a funneled upper end 403...

...in positioning of shaft 120 is optional.

Finally, shown in Figure 20 is a long **anchor** shaft 120 deployed within a flexible delivery system, such as an endoseope. Generally, anchor 20 will be **placed** against the desired **placement location** , and advanced through the scope, using a rigid or flexible plunger 5 (not shown). Also ...

...that will substantially fix the position of anchor 20 or of shaft 120 positioned within **anchor** 20. The ratcheting devices and/or interleaving members also allow movement of **anchor** 20 or shaft 120 so that tension on the sling can be increased by moving shaft 120 or **anchor** 20 upward or decreased by moving shaft 120 or **anchor** 20 downward. Ratcheting devices do not exclude elements or configurations that allow shaft 120 or **anchor** 20 to move in multiple directions.

Although the preferred embodiment has been described, it will...

Claim

CLAIMS

A tissue **anchor** system comprising a housing, an anchor stay **positioned** on said housing for retaining an **anchor** , and an **anchor** having a barb end with a barb **positioned** thereon, and an attachment member **positioned** on said **anchor** distal from said barb end, said **anchor** being engageable with said **anchor** stay to retain said **anchor** on said anchor stay when said **anchor** is **inserted** into a tissue, said barb adapted to resist removal from a tissue once inserted.

2 A tissue **anchor** system according to claim I wherein said anchor further has a shaft **connected** to said barb end, and said **attachment** member is **positioned** on said shaft. 3 . A tissue **anchor** system

comprising a delivery device and a tissue **anchor** , said delivery device having a housing, a plunger slidably positioned in said housing, said **anchor** having a barb end and a barb **positioned** thereon, and an attachment member, said **anchor** being advanced away from said housing upon operation of said plunger, said barb adapted to resist removal from a tissue once inserted.

4 A tissue **anchor** system according to claim 3 where said anchor further has a shaft **attached** to said barb end, and said **attachment** member being **positioned** on said shaft distal from said barb end.

5 A tissue **anchor** system according to claim 3 wherein said housing further has a hollow barrel portion, said...

...be substantially contained within said barrel portion before deployment into a tissue.

6 A tissue **anchor** system according to claim 3 wherein said shaft is hollow and said plunger
has a portion **positioned** within said hollow of said shaft.

7 A tissue **anchor** system according to claim 4 wherein said hollow barrel portion of said
housing has an axial slot.

8 A tissue **anchor** system according to claim 6 wherein said shaft of said **anchor** partially
extends through said axial slot in said housing.

9 A tissue **anchor** system according to claim 3 wherein said barb end has a tip, said tip
being shaped to allow said tip to penetrate a tissue.

10 A tissue **anchor** system according to claim 4 wherein said hollow barrel portion has a tip end, said...

...end being shaped to allow said tip end to penetrate a tissue.

11 A tissue **anchor** system according to claim 3 wherein said housing has a finger grip.

12 A tissue **anchor** comprising an **anchor** , said **anchor** having a barb end and a tip end, a barb **positioned** on said tip end, and an **attachment** member **positioned** on said distal end.

13 A tissue **anchor** as in claim 12 where said **attachment** member comprises a series of
projections extending radially from said attachment member.

14 A tissue **anchor** as in claim 12 where said **attachment** member comprises a clasp.
15 A tissue **anchor** as in claim 12 where said **attachment** member comprises at least one
opening through said tip end of said **anchor** .

16 A tissue **anchor** as ...13 further having a button, said button having a center opening adapted to receive said **anchor** , said center opening of said button having a first interleaving member, said exterior of said **anchor** having a second interleaving member, said first and said second interleaving members co-operating when said button is **positioned**

on said shaft
to fix the **position** of said button with respect to said **anchor** .

17 A tissue **anchor** as in claim 12 wherein said barb comprises an collapsible umbrella
shaped tip.

18 A **tissue anchor** as in claim 12 further having a retaining device **positioned** on said barb end of said **anchor** .

19 A tissue **anchor** as in claim 12 where said anchor barb end is **positional** adjustable with
respect to said attachment member.
20 An adjustable tissue **anchor** comprising a housing, said housing having a barb end and a remote end, said housing having an interior having a first interleaving member, and an **anchor** shaft, said anchor shaft sized to be **positioned** in said housing, said **anchor** shaft having a second interleaving member, said first interleaving member and said second interleaving member cooperating, when said anchor shaft is **positioned** in said interior, to adjustably fix the position of said **anchor** shaft with respect to said housing, said anchor further having an **attachment** member.

21 An adjustable tissue **anchor** as in claim 20 wherein anchor shaft ffirther has an **attachment** member.

22 An adjustable tissue **anchor** as in claim 20 where either said barb end of said housing or
said **anchor** is adapted to penetrate a tissue.

23 An adjustable tissue **anchor** as in claim 20 where said housing further has a barb
positioned on said barb end.

24 An adjustable tissue **anchor** system comprising a delivery device and an **anchor** , said delivery device having a housing with a hollow barrel portion, said hollow barrel portion having a tip end, said anchor **positioned** in said hollow barrel portion, said **anchor** having a barb end and a shaft, a barb positioned on said barb end, said **anchor** having a hollow chamber axially extending therethrough, said hollow chamber having a first interleaving member, said **anchor** further having a central shaft, said central shaft substantially **positioned** in said hollow barrel, said central shaft being moveably **positioned** through said hollow chamber of said **anchor** , said central shaft having a tip end and an **attachment** end, said central shaft having a second interleaving member, said first and second interleaving members being engageable to resist
movement of said central shaft with respect to said **anchor** .

25 An adjustable tissue **anchor** system according to claim 24 further having a plunger slidably **positioned** on said housing, said plunger adapted to engage said central shaft when
plunged.

26 An adjustable tissue **anchor** system comprising a delivery device and an **anchor** , said delivery device having a housing, said housing being adapted to retain said anchor when **inserting** said **anchor** into a tissue, said **anchor** having a hollow chamber axially extending therethrough, said hollow chamber having a barb end and a shaft, a barb

positioned on said barb end, said **anchor** having a hollow chamber axially extending therethrough, said hollow chamber having a first interleaving member, said **anchor** further having a central shaft, said central shaft substantially **positioned** in said hollow barrel, said central shaft being moveably **positioned** through said hollow chamber of said **anchor** , said central shaft having a tip end and an **attachment** end, said central shaft having a second interleaving member, said first and second interleaving members being engageable to resist movement of said central shaft with respect to said **anchor** .

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PERCUTANEOUS AND HIATAL DEVICES AND METHODS FOR USE IN MINIMALLY INVASIVE PELVIC SURGERY
DISPOSITIFS PERCUTANES ET HIATAUX ET LEURS PROCEDES D'UTILISATION EN CHIRURGIE PELVIENNE PEU VULNERANTE
Patent Applicant/Assignee:
BOSTON SCIENTIFIC IRELAND LIMITED BARBADOS HEAD OFFICE,
GELLMAN Barry N,
BRENNEMAN Rodney,
SAUVAGEAU David,
PINTAURO William,
APPELL Rodney,
MORIN Armand A,
Inventor(s):
GELLMAN Barry N,
BRENNEMAN Rodney,
SAUVAGEAU David,
PINTAURO William,
APPELL Rodney,
MORIN Armand A,
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Detailed Description
... the pocket or opening 1 1.
The sling can then be attached to a bone **anchor** or other structures, and tensioned to support the bladder neck or stabilize the urethral floor ...

...creating an opening or pocket in the tissue between the urethra and the upper vaginal **wall** and devices for use in the hiatal techniques. The hiatal methods can be practiced without the necessity for a **vaginal** incision, thus minimizing the risk of infection from the procedure.

As will be described in...

...a lumen is created in the hiatal tissue between the urethra and the upper vaginal **wall** . The lumen is then expanded to create an opening or pocket of a size sufficient...

...The opening or pocket is then held open with the tissue expander while a first **suture** or flexible **guide** member is percutaneously advanced into the opening or pocket. The **guide** member may be a **suture** , **guidewire** , or other structure suitable for guiding a sling to a desired location. The first **suture** or flexible **guide** member is grasped with a grasping device and withdrawn through the lumen and out of the body. The process is repeated with a second **suture** or flexible **guide** member on the opposite side of the urethra. The two **sutures** or flexible **guide** members are then tied together to create a **guide** for delivering a sling into the pocket. The knotted section of the **suture** or **guide** member is then translocated outside of the body so that the progress of the sling along the **suture** or **guide** member is unimpeded.

Alternatively, the sling may be attached to the **sutures** extending outside of the body, rolled or restuffed, and drawn into the body through the lumen by pulling on the **sutures** .

As discussed above, after creation of the lumen in the hiatal tissue, the lumen is...

...single balloon capable of creating a pocket of that width. In this way, tearing of **tissue** above and below the pocket is minimized.

Figure 82 shows a preferred embodiment 1536 in...

...cm in diameter when expanded.

Some physicians prefer procedures which take place beneath the pelvic **floor** so as to avoid any unnecessary disruption of muscle, the slings are preferably about 1...for slippage off center during placement.

Other physicians prefer procedures which break through the pelvic **floor** and produce scarring which may reinforce the area. In such procedures, the slings may be as long as 20-25 cm. These long slings minimize the length of attaching **suture** and permit more tissue ingrowth while providing security against **suture** breakage.

Preferably, the slings used in such procedures are about 2 cm wide.

Those skilled...

...flat pocket sized to receive a sling while avoiding the unnecessary dilation or tearing of **tissue** above and below the sling pocket which may occur if a cylindrical balloon was used...

...views of Figures 85 and 86.

As illustrated in Figure 84, the balloon 1640 is **located** at the distal end of a generally rigid inflation tube 1642 which extends through the...

...balloon 1640. The inflation tube 1642 provides a generally rigid support structure during advancement and **placement** of the balloon 1640 in the body tissue. Preferably, the inflation tube 1642 has a...

...Figure 85, the inflation tube 1642 has two lumens in its interior. One lumen, the **guide** lumen 1652, is adapted to receive a **guide** member, while the other lumen, the inflation lumen 1654, is for inflation of the balloon ...provided with more than two lurnens to accommodate other instruments necessary to perform the surgical **procedure** .

The inflation tube has a luer tip 1656 at its proximal end which is adapted...

...described above, or may be used to create a pre-formed opening for receiving the **guide** member **placement** devices 10, 1910, the sling application devices 710, 81OF 910, 1010, or the detachable member...

...create the opening or pocket in the tissue between the urethra and the upper vaginal **wall** in transvaginal incontinence **treatments** . In such transvaginal **procedures** the balloon catheter is inserted through the upper **vaginal wall** into the area in which the opening or pocket is to be made. The balloon...

...some instances, the physician may use the balloon catheters in conjunction with transvaginal bone anchor **implantation** devices such as those disclosed in the copending U.S. Patent Application Serial No.

081744,439 entitled "Transvaginal Anchor **Implantation** Device", filed November 8, 1996. However, use of the balloon catheters in conjunction with transvaginai bone anchor **implantation** devices may impact the expense of such procedures.

The balloon catheters described above and depicted...

...introduced into the body in a number of ways. In one method a needle or **guide** member is **inserted** into the hiatal tissue to the desired **location** . The needle or **guide** member is **inserted** into the **guide** lumen of the catheter. The catheter is advanced along the **guide** member or needle to the desired **location** . A syringe filled with saline or sterile water is **attached** to the luer tip at the end of the catheter and the plunger of the or tears the **tissue** thereby creating a shallow opening or pocket adapted to receive a sling.

In an alternate...

...hallow needle or trocar is introduced into the body tissue and advanced to the desired **location** . A balloon catheter, which may have a single inflation lumen, is passed through the lurnen...

...an opening or pocket in a body tissue and grasping devices 1810 for grasping a **suture** advanced into the opening or pocket.

In general, the tissue expander comprises a tube with a lumen extending therethrough, an expandable and collapsible member **attached** to the tube for **insertion** into the opening within the body tissue and expansion thereof, and an expansion and collapse...

...the expandable and collapsible member for moving the expandable and collapsible member between a first **position** in which it is collapsed and a second **position** in which it is expanded.

One embodiment of a tissue expander 1 71 0 according...

...scope, and a grasping device to be simultaneously housed therein.

An expansion basket 1716 is **attached** to the tube 1712. Preferably, the expansion basket 1716 comprises a plurality of wires 1718 joined at their distal ends by a tip 1720 which is **connected** to a pull wire 1722. The expansion basket 1716 is movable between a first **position** in which it is collapsed (indicated with solid lines) and a second **position** in which it is expanded (indicated with dashed lines) as shown in Figure 87.

When...

...towards the proximal end of the device, the expansion basket 1716 moves to the expanded **position** .

When the pull wire 1722 is released, the expansion basket 1716 collapses.

The expansion basket...

...expander, a self-expanding not or a self-expanding mesh tube may be used in **place** of the expansion basket.

A further aspect of the present invention relates to a grasping...to fit inside the lumen of the tube of the tissue expander described above. When **inserted** into the lumen of the tube of the tissue expander, the grasping device is axially...

...grasping device 181-0 comprises an elongate member 1812 and self-expanding grasping basket 1814 **attached** to the distal end of the elongate member 1812.

Preferably, the grasping device 1810 is...

...devices 1810 and tissue expanders 1710 can be used in a wide variety of surgical **procedures** in which it is necessary to expand an opening in a body tissue and grasp a **suture** which has been advanced into the expanded opening. For illustrative purposes, the use of the...

...hiatal bladder neck stabilization procedure is described below.

Figure 89 shows the urethra 64, the **vagina** 1836, the hiatal tissue 62 between the urethra and the upper vaginal **wall** , and a target site 1816 for **insertion** of a device for creating a lumen 1818 in the hiatal tissue. In the hiatal...

...Foley catheter 1820 inside a large bore tube 1822. The large bore tube 1822 fits **securely** over the Foley catheter and extends out of the urethra.

Preferably, the large bore tube...
...bladder neck to the proximal end. In some embodiments, the large bore tube 1822 has **guide** means thereon which allow the needle 1830 or other dissecting device for dissecting the hiatal tissue, such as a cutter knife, to be **guided** to the desired site. Such devices are described in the copending U.S. Patent Application February 13, 1997.

As shown in Figure 90, the Foley catheter 1820 is **inserted** into the urethra 64 and advanced to the bladder neck 1826. When the balloon 1828 ...

...skilled in the art.

As shown in Figure 91, a large bore needle 1830 is **inserted** into the hiatal tissue 62 between the urethra 64 and the upper vaginal **wall** 66 at the target site 1816 indicated in Figure 89. An appropriately sized needle may...

...by measuring the distance between the balloon 1828 of the Foley catheter 1820, which is **positioned** at the bladder neck 1826, and the external urethra. The needle should be slightly shorter than the measured length.

For example, the needle may be **approximately** 0.25 inch less than the measured length.

- The needle 1830 may be **guided** by eye or may be mechanically **guided** to penetrate the hiatal tissue parallel to the without penetrating the upper vaginal **wall** . The needle is advanced parallel to the urethra 64 below the midline of the urethra...

...tissue. In this embodiment, the large bore tube 1822 in which the Foley catheter is **placed** has a series of thermistors and associated **connectors** which provide temperature feedback for use in conjunction with a bi-polar FIF cutter device...

...Patent Application Serial No. 601038,380, filed February 13, 1997.

A balloon catheter 536 is **inserted** into the bore of the needle 1830 and advanced beyond the tip of the needle body.

The tissue expander 1710 is **inserted** into the large bore of the needle 1830 and advanced beyond the tip of the...

...1818 in the hiatal tissue as shown in Figure 96.
A fiberoptic scope 1832 is **inserted** into the tube 1712 of the tissue expander 1710 and is extended into the interior of the expansion basket 1716.

A **guide** member **placement** device 10 such as that described above is used to advance a **suture** 1834 or **guide** member from a suprapubic incision, along the back side of the pubic bone toward the upper vaginal **wall** . The **suture** 1834 or **guide** member is extended into the expansion basket 1716 of the tissue expander 1710 as shown...

...97. The fiber optic scope 1832 permits the physician to visualize the position of the **suture** 1834 or **guide** member in order to determine when the **suture** 1834 or **guide** member is within the expansion basket 1716.

A grasping device 1810 is **inserted** into the lumen 1714 of the tube 1712 of the tissue expander 1710.

The self...

...tube 1712, causing the selfexpanding basket 1814 to expand, as shown in Figure 97. The **suture** 1834 or **guide** member 68 is **positioned** inside the -self-expanding basket 1814 and the self-expanding basket 1814 is pulled back...

...of the tube 1712, causing the self-expanding basket 1834 to collapse and grasp the **suture** 1834 or **guide** member, as shown in Figure 98. As shown in Figure 99, the self expanding basket 1814 is withdrawn through the tube 1712, drawing the **suture** toward the outside of the patient's body. The grasping device 1810 is removed from the tube 1712, pulling the **suture** 1834 outside the patient's body.

A second **suture** is advanced along the back side of the pubic bone toward the upper **vaginal wall** with a **guide** member **placement** device as described above. The second suture is **positioned** on the opposite side of the urethra from the first **suture** and is advanced into the expansion basket, grasped with the grasping basket, and drawn outside

the patient's body as described above. Following this procedure, a second **suture** or **guide** member extends from the patient's body.

The large bore needle 1 830 and tissue...

...71 0 are then removed from the patient's body. The ends of the two **sutures** are knotted together and the ends of the knotted **suture** extending from the suprapubic incisions are pulled to draw the knotted **suture** back into the body. The knot is advanced out of one of the suprapubic incisions providing an uninterrupted **suture** or **guide** member extending between the suprapubic incisions around the urethra. The **suture** provides a **guide** path from the suprapubic incisions around the urethra which may be used to introduce a...

...as described above.

In an alternative embodiment, the large bore needle 1830 is left in **place** . A sling is secured to the **sutures** outside the body, rolled or restuffed, and then drawn through the bore of the needle...

...the opening or pocket in the body tissue by pulling on the ends of the **sutures** extending from the suprapubic incisions.

The tension on the sling may be adjusted as described above. Bone **anchors** or other means may be used to secure the **sutures** as discussed above to support the bladder neck or stabilize the urethral floor, thereby maintaining...

Claim

1 A **guide** member **placement** device for **inserting** a **guide** member in a body tissue, comprising: a shaft having a proximal end, a distal end, and a lumen extending therethrough, said lumen
adapted for receiving a **guidemember** ; and
an engaging member said distal end of said shaft for engaging another **guide** member **placement** device.

2 The **guide** member **placement** device of Claim 1, further comprising a blunt dissection tip at the distal end of...

...a handle with a lumen extending therethrough, wherein said proximal end of said shaft is **attached** to said handle such that said lumen of said shaft and said lumen of said handle are aligned.

3 The **guide** member **placement** device of Claim 2, wherein said blunt dissection tip is on a blunt dissector within said shaft and is extendable from and retractable in said shaft.

4 The **guide** member **placement** device of Claim 3, wherein said **guide** member **placement** device is
adapted for use in urethral floor reconstruction **procedures** .

5 The **guide** member **placement** device of Claim 4, wherein said **guide** member **placement** device is
adapted for use in bladder neck stabilization procedures.

6 The **guide** member **placement** device of Claim 5, wherein said engaging member comprises a male connector.

7 The guide member **placement** device of Claim 5, wherein said engaging member comprises a female connector. B. The guide member **placement**

device of Claim 4, wherein said shaft has a straight proximal section, a bent intermediate section and a distal end oriented at an angle of **approximately** 90 degrees relative to the proximal section.

9 The **guide** member **placement** device of Claim 4, further comprising a **guide** member removably
positioned in said lumen of said shaft.

10 The **guide** member **placement** device of Claim 4, wherein said **guide** member comprises a **guidewire** .
11 The **guide** member **placement** device of Claim 4, wherein said **guide** member comprises a suture.

12 A method of **inserting** a **guide** member into a body tissue, comprising the steps of: percutaneously **inserting** a shaft of a first **guide** member **placement** device; advancing said shaft of said first **guide** member **placement** device through the body tissue to a central point through which the **guide** member will pass; percutaneously **inserting** a shaft of a second **guide** member **placement** device; advancing said shaft of said second **guide** member **placement** device through the body tissue to
said central point through which the **guide** member will pass; coupling an engaging member on a distal end of said shaft of said first **guide** member **placement** device to an engaging member on a distal end of said shaft of said second **guide** member **placement** device such that a lumen in said shaft of said first **guide** member **placement** device is in fluid communication with
a lumen in said shaft of said second **guide** member **placement** device; passing a **guide** member through said lumens of said coupled shafts of said first **guide** member
placement device and said second **guide** member **placement** device; and removing said shaft of said first **guide** member **placement** device and said shaft of said second **guide** member **placement** device from the body, thereby leaving said **guide** member in the body tissue.

13 The method of Claim 12, wherein said first and second shafts are percutaneously **inserted** through
first and second suprapubic incisions.

14 The method of Claim 13, wherein the shafts of the first and second **guide** member **placement** devices are **inserted** into a pre-formed opening or pocket in the body tissue.

15 The method of...

...tissue by extending and retracting a blunt dissector tip from at least one of said **guide** member **placement** devices.

16 The method of Claim 14, wherein said pre-formed opening or pocket is in the tissue between the urethra and the upper vaginal **wall** , such that said **guide** member is left in said pre-formed opening or pocket.

17 A sling application catheter...
...application catheter of Claim 1 8, wherein said catheter is adapted to travel over a **guide** member.

20 The sling application catheter of Claim 19, wherein the distal end of said...

...Claim 29, wherein said sling application catheter is passed through said body tissue
over a **guide** member.

31 The method of Claim 30, wherein said sling is introduced into the tissue between the urethra and
the -upper vaginal **wall** .

32 The method of Claim 31, wherein said first incision and said second incision are...

...or pocket in a body tissue, said
tissue dissectorldilator comprising:
a body;
a noncompliant shaft **attached** to said body;
a dissector carried on said shaft for creating an opening or pocket...
...for extending and retracting said axially movable integral dissector and expandable dilator between a first **position** in which said dissector extends from the shaft, a second **position** in which both said dissector and said dilator extend from the shaft, and a third **position** in which said
dissector and said dilator are retracted inside said shaft; and
a second can be **positioned** to **lock** said axially movable integral dissector and expandable dilator in a fully extended **position** .

44 The tissue dissector/dilator of Claim 43, wherein said spring return button provides a...

...syringe in said body comprising a plunger, a reservoir, and a tip; and
a syringe **locking** mechanism, wherein said tip of said syringe fixedly engages said syringe **locking** mechanism to **place** said reservoir of said syringe in fluid communication with said balloon catheter, and said trigger...

...Claim 46, wherein said catheter further comprises a second lurnen adapted for passage of a **guide** member.

48 The tissue dissectorldilator of Claim 47, wherein said catheter further comprises a third...

...The tissue dissectorldilator of Claim 48, wherein said third lumen is adapted for receiving an
implant .

51 The tissue dissectorldilator of Claim 48, wherein said third lurnen is adapted for irrigation...

...creating and dilating an opening or pocket in a body tissue, comprising:
abody;
anoncompliant shaft **attached** to said body;
adissection means carried on said shaft for dissecting an opening or pocket...

...and dilating an opening or pocket in a body tissue, comprising the steps of: percutaneously **inserting** a noncompliant shaft of a tissue dissectorldilator into said body tissue;
advancing said shaft through...

...opening or pocket.

54 The method of Claim 53, wherein said tissue dissectorldilator is percutaneously **inserted** through a suprapubic incision.

55 The method of Claim 54, wherein said body tissue is the tissue between the urethra and the upper vaginal **wall** and said first opening or pocket is perpendicular to the longitudinal axis of the ...of the urethra to the other.

56 The method of Claim 53, further comprising:
percutaneously **inserting** a noncompliant shaft of a second tissue dissectorldilator into said body tissue;
advancing said noncompliant...

...body tissue.

57 The method of Claim 56, wherein said second tissue dissectorldilator is percutaneously **inserted** through a suprapubic incision.

58 The method of Claim 57, wherein the body tissue is the tissue between the urethra and the upper vaginal **wall** and said continuous opening or pocket is perpendicular to the longitudinal axis of the urethra...

...from one side of the urethra to the other.

59 A sling application device for **inserting** a sling into a pocket in a body tissue, comprising: a first shaft and a...

...engaged thereto.

61 The sling application device of Claim 60, further comprising a first handle **attached** to said first shaft and a second handle **attached** to said second shaft, said first and second handles having openings therein, wherein said openings...

...are in fluid communication with said lumens in said shafts to which said handles are **attached** , and said first and second handles are adapted to be **connected** to one another.

62 The sling application device of Claim 61, wherein said adjuster engages...interlocking.
69 The sling application device of Claim 59, wherein said adjuster comprises an articulating **lock** .

70 The sling application device of Claim 59, wherein said first shaft and said second...

...bone with which it comes in contact, said blunt dissector comprising adissector shaft adapted for **insertion** into said first and second shafts of said sling application device, said dissector shaft having...

...said first and second shafts of said sling application device when said blunt dissector is **inserted** into said first and second shafts of said sling application device.

75 The sling application...

...said blunt dissector comprises an obturator.

76 A sling introducer adapted for introducing a sling **attached** thereto into an opening or pocket in a body tissue without the use of **sutures** , said sling introducer comprising a sling engager having said sling releasably engaged thereto, said sling cavity formed with said razor has dimensions adapted for **insertion** of a sling therein.

84 A sling application system comprising:
a sling application device comprising...

...with which it comes in contact, said blunt dissector comprising a dissector shaft adapted for **insertion** into said first and second shafts of said sling application device, said dissector shaft having...

...said first and second shafts of said sling application device when said blunt dissector is **inserted** into said first and second shafts; and said sling introducer for introducing a sling **attached** thereto into an opening or pocket in the body tissue without the use of **sutures** , said sling introducer comprising a sling engager having said sling releasably engaged thereto, said sling...

...the body tissue.

86 A method for introducing a sling into a body tissue comprising:
inserting a first blunt dissector into a first shaft of a sling application device; percutaneously **inserting** said first shaft having said first blunt dissector therein;
advancing said first shaft through the body tissue;
inserting a second blunt dissector into a second shaft of said sling application device; percutaneously **inserting** said second shaft having said second blunt dissector therein;
advancing said second shaft through the...

...incision and a second incision wherein said first shaft of said sling application device is **inserted** into said first incision prior to advancing it through said body tissue and said second shaft of said sling application device is **inserted** into said second incision prior to advancing it through said body tissue.

88 The method...introduced into a pre-formed pocket in the tissue between the urethra and the vaginal **wall** .

89 The method of Claim 88, wherein said first incision and said second incision are suprapubic incisions.

90 The method of Claim 86, further comprising **inserting** a tissue cutter into said first shaft of the sling application device and extending the
...
...dilating an opening or pocket in the tissue between the urethra and the upper vaginal **wall** , said expandable balloon having a proximal end and a distal end in said lumen of...

...said catheter.

99 A detachable member sling application device for introducing a sling having sutures **attached**
thereto into an opening or pocket in a body tissue, comprising:
a housing;
on introduction shaft **connected** to said housing, said introduction shaft having a lumen extending therethrough, said lumen adapted to

receive said sling having sutures **attached** thereto; and a detachable member on the distal end of said introduction shaft, said detachable member being **connected** to at least one of said sutures **attached** to said sling. 100. The detachable member sling application device of Claim 99, further comprising...

...movable needle, said needle comprising a needle shaft and a sharpened point, said needle being **located** inside said lumen of said introduction shaft and extendable therefrom. 101. A retrieval device for...
...end, wherein said engaging member is adapted to engage a detachable member connected to a **suture** **attached** to said sling.
1 02. A method of stabilizing the bladder neck comprising the steps in said the tissue between the urethra and the upper vaginal **wall** ; **inserting** a sling application device into said pocket or opening; introducing a sling into said pocket or opening with said sling application device; and **securing** said sling to tissue or bone to stabilize the bladder neck.
103. The method of...

...further comprising:
providing a detachable member sling application device comprising a housing, an introduction shaft **connected** to said housing, said introduction shaft having a lumen extending therethrough, said lumen adapted to receive said sling having sutures **attached** thereto, said detachable member sling application device also comprising a detachable member on the distal end of said introduction shaft, said detachable member being **connected** to at least one of said sutures **attached** to said sling, wherein the step of **inserting** a sling application device into said pocket or opening comprises **inserting** said detachable member sling application device into said opening or pocket; detaching a detachable member...
...end of said shaft of said detachable member sling application device, said detachable member being **connected** to said sling; introducing a shaft of a retrieval device into said opening or pocket...

...said opening or pocket is in a hiatus between a urethra and an upper vaginal **wall** . 106. The method of Claim 105, further comprising the stop of expanding said opening or...

...a tube having a lumen extending therethrough;
an axially movable expandable and collapsible expansion basket **attached** to said tube for **insertion** into said opening or pocket within the body tissue and expansion thereof; and an expansion...

...said expansion and collapse control comprises a pull wire. 110. A grasping device adapted for **insertion** into a lumen of an expansion device, said expansion device having an expansion basket for...device comprising a catheter having a grasping member on its distal end for grasping a **suture** or **guide** member which has been advanced into said expansion basket of said expansion device. 111. The...

...method of creating a pocket in the tissue between the urethra and the upper vaginal **wall** comprising hydrodissecting said tissue. 114. A method for holding a pocket in a body tissue in an open **position** , comprising:
making a lumen in the body tissue;
expanding said lumen in the body tissue to create said pocket in said body tissue;
inserting an expansion device into said pocket; and
expanding an expansion basket on said expansion device in said pocket,

thereby holding said pocket in said open **position** . 115. The method of Claim 114, wherein said body tissue comprises a hiatus between a urethra and an upper vaginal **wall** . 116. The method of Claim 115, wherein said lumen is expanded with a balloon catheter .
117. The method of Claim 116, further comprising the steps of:
inserting a **suture** or **guide** member through a suprapubic incision into said pocket; **inserting** a grasping device comprising a catheter having a grasping member on its distal end into
a lumen of said expansion device;
grasping said **suture** or **guide** member with said grasping device;
withdrawing said **suture** or **guide** member to a desired **position** . 118. The method of Claim 117, wherein said **suture** or **guide** member is grasped under direct vision. 119. A method of introducing a sling into a
...
...a pocket in said body tissue;
c) holding said pocket in an open position;
d) **inserting** a **suture** or **guide** member into said pocket in said body tissue, wherein said **suture**
is an a first side of a urethra;
e) grasping said **suture** or **guide** member;
f) withdrawing said **suture** or **guide** member outside of said body tissue through said lumen;
g) repeating steps (d) through (f) on a second side of said urethra;
h) tying the two **sutures** together; and
i) guiding said sling into said pocket using said **sutures** . 120. The method of Claim 1 19, wherein said body tissue comprises a hiatus between said urethra and an upper vaginal **wall** . 121. A method of introducing a sling into an opening in a body tissue comprising...

...a pocket in said body tissue;
c) holding said pocket in an open position;
d) **inserting** a **suture** or **guide** member into said pocket in said body tissue, wherein said **suture**
is on a first side of a urethra;
e) grasping said **suture** or **guide** member;
f) withdrawing said **suture** or **guide** member outside of said body tissue through said lurnen;
g) repeating steps (d) through (f) on a second side of said urethra;
h) attaching a sling to the two **sutures** outside of said body tissue; and
i) introducing the sling through said lurnen into said...

...121, wherein said body tissue comprises a hiatus between said urethra and an upper vaginal **wall** .

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00389895 **Image available**
NON-LINEAR ANCHOR INSERTER DEVICE AND BONE ANCHORS
DISPOSITIF NON LINEAIRE POUR L'INTRODUCTION D'UN ELEMENT D'ANCRAGE, ET ELEMENTS D'ANCRAGE OSSEUX
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Detailed Description
... the bone anchor 35 (as the anchor or screw protector retracts) touches and penetrates the **vaginal wall** and, upon ejection and **implantation** , enters the cortex of the pubic bone.

Thus, once the **inserter** is stable and properly **positioned** in the **vagina** , the trigger 20 (or switch 80, for the **screw inserter** of Fig. IC; safety or activating trigger 205 of the device of Figure le) is pulled and the bone **anchor** 25 penetrates and fixates within the bone. When the end of the **inserter** 10 is **located** on pubic bone, and pressed against it, the physician pulls up on the handle 15 of the stapler or bone **anchor inserter** 10. By doing so, the physician lifts the **anchor** 35 or **screw** 120 and **anchor** housing 25 or **screw** adaptor 90 against the pubic bone. A portion of the weight of the patient resists the lifting of the **inserter** , pressing against it firmly. As a result, the lifting of the stapler or bone **anchor inserter** 10 is performed against some of the weight of the patient, ensuring a firm and effective contact of the **anchor** tip with the pubic bone. Mechanically, it is easier for the physician to pull on the **inserter** with his or her hand outside of the **vagina** and to resist the power drive recoil of the device than for the physician to have his or her triggering hand within the **vagina** and pushing the **inserter** against the pubic bone. The penetration of the tip of the bone **anchor** into the bone cortex, before ejection or **screwing** further, increases the stability of the ejection into the pubic bone. The use of the C-shaped **inserter** allows at least part of the patient's weight to counterbalance the recoil of the power drive mechanism. The patient's body weight, along with the **inserter** 's shape, provides the physician with suitable leverage for ensuring penetration of the **anchor** 35 or **screw** 120 into the pubic bone. This is especially important in the use of the present bone **anchor** device which, in the case of the power driven ejected **anchor** , seeks to avoid pre-drilling of a hole, followed by a separate step of **anchor**

insertion .

Releasing the safety 42 first and then pressing the trigger 20 of the device activates the **inserter** spring mechanism which ejects the **anchor** 35 to a prescribed depth within the bone (e.g. 2.5 mm) so that little or no portion of the **anchor** protrudes from the bone surface. Although the end of the **inserter** will experience a reaction or recoil force when the **staple** is ejected, the weight of the patient, pressing downward against the inserter end (**anchor** housing 25 and **anchor** shield 30) combined with the force exerted by the physician by pulling the handle 15 of the bone **anchor** **inserter** 10 upward (so that the end of the **inserter** is forced against the weight of the patient and the penetration of the tip of the **anchor** into the pubic bone before ejection) result in a firm and solid contact between the **inserter** and the pubic bone during and through the **insertion** process, minimizing any problems of **insertion** associated with power driven **stapler** recoil.

Two to four anchors are preferably inserted into the patient. Bone anchors are **inserted** on each side of the urethral axis or parallel along each side of the posterior aspect of the superior pubic bone ramus, lateral to the symphysis pubis.

When four bone **anchors** are used, two bone **anchors** are **inserted** on each side of the urethral axis or parallel along each side of the posterior...

...pair of two bone anchors is inserted, with the two bone anchors in a pair **approximately** 2 cm. apart.

Cystoscopy is then performed to verify that there are no bladder or urethral perforations.

The **suture** threads extending from the **anchors** are then tied. For example, when inserting four bone anchors, four sets of suture threads should protrude from the **vaginal** **wall** . The **suture** threads are tied from one bone **anchor** to the other, ipsilaterally on each side of the urethra, as shown in Figure 5. They may be tied either above the **vaginal** mucosa or below the **vaginal** mucosa (using a deshamp) with or without **vaginal** dissection. The tie may be left as is or pushed beneath the mucosa.

Suprapubic or...

...is administered perioperatively. Physical strain and lifting by the patient is to be avoided for **approximately** 2-3 months.

In one recommended embodiment, the bone **anchor** can be made of a single piece of a shape memory alloy, such as the nickel-titanium alloy called Nitinol.

One form of bone **anchor** , for example, which can be used with the present
invention, has a conical front end...from 1.9 - 2.4 mm and a thickness of about 0.6 mm. The **anchor** tail 44 contains two hole's 48 and 50 which are used for threading the **suture** . An example of a **suture** thread which can be used in the bone **anchor** is sterile polypropelene monofilament No. 1. The bone **anchor** is depicted in Figures 6 through 8. According to the preferred embodiment of the bone **anchor** 35, the longitudinal axis of the tail end is laterally offset from the center axis...

...conical tip 46. This is best seen in Figs. 7 and 8. This allows the **suture** to be protected during the **insertion** process. 0 n c e driven within the bone medulla, the bone **anchor** 35 quickly heats to body
temperature, changing, by shape memory alloy properties, for example, from a straight to a curved shape, i.e., the longitudinal axis of the **anchor** changes, after **insertion** . Alternatively, the shape memory effect can be accomplished by stress (holding it within the **anchor** housing) on the **anchor** and the subsequent removal of the stress. The shape of the **anchor** before **insertion** is shown in Figure 7, while Figure 8 shows the shape after it reverts to...

...the tail and the rear
end of the conical tip, after heating of the bone **anchor** sufficient to change its shape, will subtend an angle of about 75' +/- 16' (as seen in Fig. 8). This change of shape is because of the fabrication of the **anchor** from shape memory alloy.

This curved shape ensures fixing the **anchor** within the bone and inhibits the inadvertent removal of the **anchor** . Pulling on the suture, which is **connected** to the **anchor** 35, causes the **anchor** to rotate and further fix in the bone. The
reformation of the **anchor** to its curved shape (the shape it had prior to
straightening) and rotation, together, prevent the **anchor** from exiting through the entrance path provided into the bone. The small profile and sharpness of the **anchor** tip 46 allow easy **insertion** inside the bone with minimal damage to the bone surface.

Thus, the present invention provides an apparatus and method which (in the **anchor** ejection or **screwing** mode) does not require pre-drilling of the bone or soft tissue dissection to **insert** the bone **anchor** into the bone. Similarly, the bone **anchor** does not require cement or other fixative to remain in place.
The bone anchor and bone anchor **inserter** are supplied sterile. As the bone **anchor** **inserter** is a multiple use device, the **inserter** (and its loading key) should, of course, be cleaned and sterilized before each new patient procedure. Cleaning is accomplished by washing and rinsing the **inserter** and loading key with water and a liquid detergent, while scrubbing with a flexible brush to completely remove all traces of blood. The **inserter** and loading key should be rinsed thoroughly with water to remove detergent residues. Panels in the **inserter** body allow access for cleaning. Once cleaned, the **inserter** and loading key may be cloth or air dried.

The **inserter** and loading key may be sterilized by heat or steam autoclave, or gas (EtO), in accordance with hospital procedures for sterilization of stainless steel **surgical** instruments.

Various different types of bone **screws** 120 can be used in accordance with the present invention. As shown in Figure Id(1), a bone **screw** is disclosed having a conical tip 110 and a **screw** body 115. The diameter of each of the **screw** threads 128 (the grooves, recesses or indentations in the material of the **screw**) is constant along the length of the screw body. The **suture** 125 is **attached** at a single hole in the rear end 127 of the bone **screw** .
Figure 1d(2) shows a bone **screw** 120 with a more tapered conical tip 130 and **screw** body 135. In this version, the diameter of the **screw**

threads 140 vary along the longitudinal axis of the **screw** . The diameters of the **screw** threads 140 increase from small diameters near the apex of the conical tip to greater diameters near the **screw** body 135. The **screw** threads 140 can be **located** on all or a portion of the **screw** body as well, if desired. The **suture** 150 is **attached** through a hole in the end 147 of the **screw** .

Figure ld(3) is similar to Figure Id(l). In this figure, however, the **suture** is shown **attached** through a hole in the middle 152 of the bone **screw** .

Figure Id(4) shows a bone **screw** 120 in which the **screw** threads or grooves are formed by wrapping spring wire 156 around the solid body. The ...

...of increased cross section in comparison to the shaft, is provided with a hole for **attaching** the **suture** thread 176. The spring wire is wrapped on the shaft 172 and maintained between leading tip 170 and the enlarged trailing end 174.
Figure Id(5) shows a bone **screw** similar to that in Figure ld(4). In this
screw , leaf springs 158 are provided. Leaf springs 158 are initially held against the side surface of the bone **screw** , i.e., before and as the **screw** is **inserted** into the bone. Upon **insertion** , however, the leaf springs 158 expand outwardly from their compressed to a non-compressed state (due to the elasticity which is characteristic of a spring) to provide greater **anchoring** of the bone **screw** within the bone.

Figure Id(6) discloses a bone **screw** in which the **screw** threads or grooves are formed by wrapping a spring plate 163 around the **screw** body of shaft of the **screw** . Here, too, the spring plate is held between the enlarged surfaces of the leading tip and the trailing end. Upon **insertion** , the spring plate expands to hold the anchor in **place** in the bone.

The bone **screw** is typically made of a medical grade alloy such as Stainless Steel 316. Its sharp tip and small diameter allow for penetration through the **vaginal wall** and the periosteum, without pre-drilling a hole. As the **screw** is rotated by the **inserter** , which may be linear or C-shaped, it enters the bone until it reaches a prescribed depth within the bone. The **screw** then disconnects from the rotating **inserter** shaft. The medical **technique** of **inserting** a bone **screw** into the pubic bone through the **vagina** for the purposes of bladder neck suspension is also within the scope of the present invention, as is the bone **screw inserter** .

Having described this invention with regard to specific embodiments, it is to be understood that...

Claim
1. A medical device for ejecting and installing a bone anchor with **attached**
suture into a patient, comprising:
a handle;
a body, said body having a first end and a second end, said body being **attached** to said handle at said first end, said body and said handle together
forn-ling a non-linear shape;
an anchor housing, said **anchor** housing **located** at said second end of

said
body and being provided for holding a bone **anchor** ; and,
a power means in communication with said **anchor** housing for providing driving power to the bone **anchor** .

2 A medical device as claimed in Claim 1, wherein said body and said handle...

...claimed in Claim 1, wherein said device is a medical stapler for forcibly ejecting and **implanting** a self-tapping bone **anchor** into the bone of a patient.
5 A medical device as claimed in Claim 1, wherein said device is a **screw**

driving device for **screwing** a self-tapping bone **anchor** into the bone of a patient.

6 A system for pervaginal bone **screw** **insertion** , comprising:
a bone screw; and,
a non-linear screw inserter means for **inserting** said bone **screw** into a
patient's bone, said **inserter** means comprising a first end having a handle and a second end having a retractable shield having sharp tips, said bone **screw** being held at said second end with said retractable shield protecting said bone **screw** , wherein pulling of said handle retracts said retractable shield and reveals said sharp tips, said sharp tips being used to hold the soft tissue of a patient surrounding said **screw** and preventing the soft tissue from rotation during the **screwing** of said bone **screw** through the soft tissue and into the bone.

7 A system as claimed in Claim 6, wherein said non-linear **screw** **inserter** is C-shaped.

8 A system as claimed in Claim 6, wherein said bone **screw** comprises a shaft comprising a leading tip and a trailing end, said shaft having **screw** threads, and said bone screw further having a **suture** **secured** thereto.

9 A system as claimed in Claim 8, wherein said bone **screw** further comprises leaf springs, said leaf springs expanding outwardly upon **insertion** of said bone **screw** into the bone of a patient to more **securely** fixate said bone **screw** in the bone.

10 A system as claimed in Claim 8, wherein said bone **screw** is made of shape memory material.

11 A system as claimed in Claim 8, wherein said **suture** is **secured** at a point about midway between said leading tip and said trailing end.

12 A system as claimed in Claim 8, wherein said **suture** is **secured** at said trailing end.

13 A system as claimed in Claim 8, wherein said bone **screw** is provided with threads comprised of wire wrapped around said shaft.

14 A system as ...15 A system as claimed in Claim 8, wherein said leading tip of said bone
screw and said shaft form a taper.

16 A bone **anchor** for fixation in the bone of a patient, comprising:
a tip portion, a **screw** body portion and a tail end, said **screw** body

portion
comprising **screw** threads and either said **screw** body portion or said tail
end having at least one hole for attaching a **suture** .

17 A bone **anchor** as claimed in Claim 16, wherein said tip portion is conical.

18 A bone **anchor** as claimed in Claim 16, wherein said bone **anchor** comprises shape memory alloy.

19 A bone **anchor** as claimed in Claim 18, wherein said shape memory alloy
is activated by stress and released by removal of said stress.

20 A bone **anchor** as claimed in Claim 18, wherein said shape memory alloy
is activated and released by changes in temperature of said bone **anchor** .

21 A bone **anchor** as claimed in Claim 17, wherein said tail end is **approximately** 6.0 mm long and **approximately** 1 2.4 mm wide, is of a thickness of **approximately** 0.6 mm, and is of a nearly rectangular cross section, and wherein said conical tip has a base diameter of **approximately** 1 2.4 mm.

22 A bone **anchor** as claimed in Claim 16, wherein said tail end comprises at least two holes for securing said **suture** .

23 A bone **anchor** as claimed in Claim 16, wherein the central longitudinal axis of said tip is laterally offset from the central longitudinal axis of said **screw** body.

24 A bone **anchor** as claimed in Claim 18, wherein the longitudinal axis of said bone **anchor** changes from straight to a curved shape upon introduction into a patient's bone.

25 A bone **anchor** as claimed in Claim 18, wherein said bone **anchor** subtends an angle of **approximately** 59-91 degrees after changing shape upon introduction into a patient's bone.

26 A bone **anchor** as claimed in Claim 16, wherein said hole is **located** in said tail end.

27 A bone **anchor** as claimed in Claim 16, wherein said hole is **located** in the middle of said bone **anchor** .

28 A bone **anchor** as claimed in Claim 16, wherein the outer diameter of said **screw** threads vary over the length of said **screw** body portion.

29 A bone **anchor** as claimed in Claim 28, wherein said diameter is smaller near said tip and becomes larger near said tail end.

30 A bone **anchor** as claimed in Claim 17, wherein said **screw** threads increase from a small diameter near the apex of said conical tip to a greater diameter along the length of said **screw** body portion.

31 A bone **anchor** as claimed in Claim 16, wherein at least some of said screw threads are **located** on said **screw** body portion, and wherein the diameter said **screw** threads is constant along the length of said

screw body.

32 A bone **anchor** as claimed in Claim 16, wherein said **screw** threads are provided along substantially the entire length of said **screw** body portion.

33 A bone **anchor** as claimed in Claim 16, wherein said **screw** threads comprise a wire wrapped around said bone **anchor** .

34 A bone **anchor** as claimed in Claim 16, wherein said **screw** body comprises a shaft, and said shaft is of smaller relative cross section than said tip.

35 A bone **anchor** as claimed in Claim 16, wherein said bone **anchor** comprises at least one leaf spring, said leaf springs being capable of changing shape from a compressed to a non-compressed condition.

36 A bone **anchor** as claimed in Claim 16, wherein said **screw** threads are formed by wrapping a spring plate around said **screw** body.

37 A screw-type **anchor** **inserter** comprising:
a) a handle;
b) a body **connected** to said handle, said handle and body forming a non-linear shape;
c) a **screw** -holding adapter means **secured** to said body; and
d) a power drive means in said handle or body for providing rotational torque to said **screw** -holding adapter means.

38 An **inserter** as claimed in Claim 37 wherein said power drive means comprises a finger-operated trigger means.

39 An **inserter** as claimed in Claim 37 wherein said power drive means comprises a flexible rotating drive shaft extending between said handle and said **screw** holding adapter means.

40 An **inserter** as claimed in Claim 37 wherein said power drive means comprises:
a) an actuating trigger means;
b) a motor electrically **connected** to said trigger means and having a rotating shaft;
C) electric generating means **connected** to said motor to drive said rotating shaft when said trigger means is activated; and...

...a flexible, rotating drive shaft extending between said rotating shaft of said motor and said **screw** -holding adapter means.

41 An **inserter** as claimed in Claim 40 ftirther comprising torque enhancing means to increase the rotational torque...

...shaft in comparison to the torque of said rotating shaft of said motor.

42 An **inserter** as claimed in Claim 37 wherein said **screw** -holding adapter means is selectively, replaceably **secured** to said body.

43 An **inserter** as claimed in Claim 37 further comprising a **screw** protector housing for said **screw** -holding adapter means.

44 An **inserter** as claimed in Claim 43 wherein said housing is

retractable.

45 An **inserter** as claimed in Claim 43 wherein said housing retracts when said housing is in perpendicular contact with the tissue of a patient.

46 An **inserter** as claimed in Claim 45 wherein said housing is spring biased to protect said **screw** -holding adapter means.

47 A medical bone **anchor** **inserter** comprising:
a) a handle;
b) a body **connected** to said handle, said handle and body forming a non-linear shape;
C) a **staple** -holding head **secured** to said body;
d) a power drive means in said body for providing driving force to said **staple** holding head.

48 An **inserter** as claimed in Claim 47 wherein said power drive means is a spring loaded, hammer means and an activating trigger for selectively releasing said hammer means.

49 An **inserter** as claimed in Claim 48 wherein said hammer means comprises a reciprocating hammer rod; a first spring held on one end against a hammer rod **guide** in said body; an annular first weight slidable over a portion of one end of...

...flange which is contacted by said first weight when said trigger is activated.
50 Am **inserter** as claimed in Claim 49 wherein said hammer means is controlled by a second spring mechanism comprising:
a) a handle rod **secured** in said handle;
b) a second spring mounted on said handle rod and held in **position** on one of its ends; and
C) a slidable, annular second weight **connected** to said second end of said spring.

51 An **inserter** as claimed in Claim 47 wherein said activating trigger comprises:
a) a trigger device;
b) a **connecting** cam rotatable about a pivot point;
C) said **connecting** cam having a first rod extending therefrom and in contact with said first weight;
d) said **connecting** cam having a second rod extending therefrom and in contact with said second weight; such that with said triggering device, when in a first **position** , causes said first and second rods to maintain said first and second spring mechanisms in their compressed state and when said triggering device is moved to a second **position** , said first and second rods allow said first and second spring mechanisms to achieve their...
...first and second weights and in so doing causing said hammer rod to drive a **staple** .

37/3,K/90 (Item 90 from file: 349)
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00324059 **Image available**
SURGICAL INSTRUMENT FOR TREATING FEMALE URINARY INCONTINENCE
INSTRUMENT CHIRURGICAL POUR LE TRAITEMENT DE L'INCONTINENCE URINAIRE FEMININE

Patent Applicant/Assignee:
MEDSCAND AB,
KB ULMUS,
CLAREN Jan,
ULMSTEN Ulf,
Inventor(s):
CLAREN Jan,
ULMSTEN Ulf,

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Detailed Description
Claims

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English Abstract
The invention relates to a **surgical** instrument and a **method** for **treating** female urinary incontinence. The instrument comprises a shank (10) having a handle (11) at one end thereof, and two curved needle-like elements (21A, 21B) which are **connected** at one end thereof each with one end of a tape (26) intended to be **implanted** into the body. These elements can be **connected** one at a time with the shank at the other end thereof to form a...

...portion of the shank and are intended to be passed into the body via the **vagina** , each element being dimensioned to extend from the inside of the **vaginal wall** over the back of the pubic bone to the outside of the abdominal wall. When practising the method the tape (26) is passed into the body via the **vagina** (28) first at one end and then at the other end at one side and the other, respectively, of the urethra (30) to form a loop around the **vaginal wall** . The tape is extended over the pubis (31) and through the abdominal wall (32) and...

French Abstract
...par l'une de leurs extremites a une extremite d'un ruban destine a etre **implante** dans le corps. Ces elements, qui peuvent etre raccordes un a la fois avec l...

...constituer une partie extreme incurvee de la queue, sont prevus pour etre introduits par le **vagin** dans le corps, chaque element etant dimensionne pour etre dispose au dessus de la face arriere de l'os pubien, de l'interieur a l'exterieur de la paroi **vaginale** . Le procede

consiste a introduire par le **vagin** (28) le ruban (26) dans le corps, d'abord sur l'une des extremites puis...

...de part et d'autre de l'uretre (30) de facon a entourer la paroi **vaginale** d'une boucle, puis a faire passer le ruban au dessus du pubis (31) et...

Detailed Description
... OF THE INVENTION: Surgical instrument for treating female urinary incontinence
The invention relates to a **surgical** instrument and a **method** for **treating** female urinary incontinence, i.e.

incapacity of controlling the discharge of urine.

Urinary incontinence may be caused by a **defect** function in the **tissue** or **ligaments** **connecting** the **vaginal** **wall** with the **pelvic** muscles and pubic bone.

US-A-5 112 344 describes a **method** for **treating** female urinary incontinence without the necessity of opening the abdomen, which would require hospital care...

...a tape is passed into the body at each side of the urethra and is **implanted** between the **vaginal** **wall** and the abdominal wall extending over the pubis. The tape is tightened in order to bring the **vaginal** **wall** and the urethra into correct **position** in relation to the pubis and 15 is left in the body in order that...

...other end thereof said portion being intended to be passed into the body via the **vagina** .

The result obtained by such surgery is not always satisfactory due to the fact that fibrous tissue will not develop sufficiently since the soft tissue between the **vaginal** **wall** and the abdominal wall is in bad cond'Ltion.

The object of the invention is...

...referred to above having the characterizing features of claim 1.

The invention also provides a **method** for **treatment** of female urinary incontinence in accordance with claim 17.

Also in this method a tape is passed into the tissue between the **vaginal** **wall** and the abdominal wallbut the tape is left permanently in the body to provide itself...
...drawings which disclose the 15 surgical instrument according to the invention as well as several **surgical** steps when practising the **method** of the invention using said **surgical** instrument.

Tn the drawings
FIG. 1 is a side view of the surgical instrument in...

...is an enlarged fragmentary axial cross sectional view of a coupling of the instrument for **attaching** an exchangeable part thereof,

FIGS. 4 to 10 illustrate diagrammatically several **surgical** steps of the **method** according to the invention, and
FIG. 11 in the same way illustrates the final step of the **method** .

The **surgical** instrument comprises a cylindrical tubulary shank 10 having at one end thereof a handle 11...

...19
of further reduced diameter joining the threaded portion 18, end portion 19 forming a **guide** pin at said other end of the shaft. Portions 18 and 19 are received in...

...also includes an exchangeable and disposable element 21 which will be termed needle. It is **attached** to the shank at a straight portion at one end of the needle and extends...

...free end thereof in order to follow substantially the profile of the pubis between the **vagina** and the abdominal **wall** . The needle has circular cross section and has a smooth, preferably polished outside surface. It...

...a tissue compatible plastics, such as polycarbonate, or of steel or a similar material.

For **attachment** of needle 21 to shank 10 the needle has at said one end thereof where...

...said hole
having a threaded portion 23 and inwardly thereof a narrower, cylindrical portion 24. **Guide** pin 19 is dimensioned to be guidingly received by said latter portion when the threaded portion 18 for **attaching** needle 21 to the rest of the surgical instrument is **screwed** into threaded portion 23 of the blind hole by rotating shaft 15 by manual ...needle being pressed against each other. The needle should be oriented in a predetermined rotational **position** in relation to the shank; it should project at right angles to the plane of handle 16, and this rotational **position** is **secured** by shoulder 20 on the shank being received in a mating recess 25 in the...

...18 of shaft 15
cuts a thread in the plastics of the needle when being **screwed** thereinto.

When the two parts of the surgical instrument are **screwed** together in the manner described they form a rigid unit which can be controlled with great precision at handle 11 when it is used for **surgery** by applying the **method** of the invention.
When the method according to the invention is practised two needles 21A and 21B of the embodiment described shall be **connected** one- at each end of a tape 26, Fig. 4. In the preferred embodiment the tape end is glued to the needle but the **connection** can be effected also by the tape being passed through an eye 27, Fig. 3, in the needle adjacent the end

attached to the shank or by the tape end being **connected** by ultrasonic welding to the needle or being baked into the plastics material of the...

...1 mm in order that fibroblasts shall be able to grow into the tape for **anchoring** of the tape in surrounding tissue. A suitable material for the tape is polypropylene which...

...8 to 10 mm and a thickness of about 1 mm.

When the surgery for **implanting** the tape shall start one needle 21A is **attached** to shank 10, the other needle 21B hanging loosely in tape 26 as shown in...

...4 to 11 the relevant parts of the female lower abdomen is disclosed diagrammatically, the **vagina** being designated 28, the urinary bladder 29, the urethra 30, the pubic bone 31, and the abdominal wall 32.

The first step of the surgery for **implanting** tape 26 is disclosed in Fig. 4 and comprises penetration of the **vaginal wall** by needle 21A a cut having first been made in said wall, and also penetration...and through the tissue as illustrated in Fig. 7.

The other needle 21B is now **attached** to the shank, Fig. 8, and is passed through a cut in the **vaginal wall** to pass through the soft tissue at the other side of urethra 30. Needle 21B...

...the same way as in the earlier procedure with neede 21A.

Tape 26 is now **located** at each side of urethra 30 as shown in Fig. 10 and is tightened with the loop formed by the tape **located** on the inside surface of the **vaginal wall**, Fig. 11. The surplus of the tape at the outside of the abdominal wall is cut off. Then, the tape is left as an **implant** in the body to form an artificial ligament **attached** to the abdominal wall and providing the support for urethra as required in order to...

Claim

... end end thereof said portion being intended to be passed into the body via the **vagina**, c h a r a c t e r i z e d in that two curved needle-like elements (21A, 21B) which are each **connected** at one end thereof to one end of a tape (26) to be **implanted** into the body, are constructed to be **connected** one at the time with the shank (10) to form said curved portion each element being dimensioned to extend from the inside surface of the **vaginal wall** over the back of the pubic bone to the outside of the abdominal wall.

2...

...c t e r i z e d in that the shank (10) has a **screw** coupling (18, 23) for **attachment** of the element (21A. 21B) to the shank (10).

3 Instrument as in claim 2...

...h a r a c t e r i z e d in that the **screw** coupling comprises a shaft (15) rotatably mounted in the shank (10) and having an operating...

...the shank, and a threaded portion (18) at the other end of the shaft for **screw** engagement with the element (21A, 21B).

4 Instrument as in any of claims 1 to...

...a c t e r i z e d in that the tape (26) is **attached** to the associated ...z e d in that the tape is coated with a fibroblast stimulating material.

17 **Method** for **treating** female urinary incontinence wherein a tape (26) is passed into the body and is **implanted** at each side of the urethra between the **vaginal wall** and the abdominal wall extending over the pubic bone, c h a r a c...

...i z e d in that the tape is passed, into the body via the **vagina** first at one end thereof and then at the other end thereof at one side and the other, respectively, of urethra to form a loop around the **vaginal wall** , and that the tape is tightended.

AMENDED CLAIMS

[received by the International Bureau on 9...

...end end thereof said portion being intended to be passed into the body via the **vagina** , c h a r a c t e r i z e d in that two curved needle-like elements (21A, 21B) which are each **connected** at one end thereof to one end of a tape (26) to be **implanted** into the to body,. are constructed to be **connected** one at the time with the shank (10) to form said curved portion each element being dimensioned to extend from the inside surface of the **vaginal wall** over the back of the pubic bone to the outside of the abdominal wall.

2...

...c t e r i z e d in that the shank (10) has a **screw** coupling (18, 23) for **attachment** of the element (21A, 21B) to the shank (10).

3 Instrument as in claim 2...

...h a r a c t e r i z e d in that the **screw** coupling comprises a shaft (15) rotatably mounted in the shank (10) and having an operating...

...the shank, and a threaded portion (18) at the other end of the shaft for **screw** engagement with the element (21A, 21B).

4 Instrument as in any of claims 1 to...

...a c t e r i z e d in that the tape (26) is **attached** to the associated element (21A. 21B) by the tape

ends being glued or welded to...e d in that the tape is coated with a fibroblast stimulating material.

17 (Amended). **Method** for **treating** female urinary incontinence wherein a tape (26) is passed into the body and is **implanted** at each side of the urethra between the io **vaginal** **wall** and the abdominal wall extending over the pubic bone, c h a r a c...

...i z e d in that the tape Js passed into the body via the **vagina** first at one end thereof and then at the other end thereof at one side...

37/3,K/94 (Item 94 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
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00218921 **Image available**
STAPLE **APPLICATOR FOR USE IN THE SURGICAL TREATMENT OF FEMALE STRESS INCONTINENCE**
APPLICATEUR D'AGRAFES UTILISE DANS LE TRAITEMENT CHIRURGICAL D'INCONTINENCE D'URINE A L'EFFORT CHEZ LA FEMME
Patent Applicant/Assignee:
CUMMING John,
Inventor(s):
CUMMING John,
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STAPLE **APPLICATOR FOR USE IN THE SURGICAL TREATMENT OF FEMALE STRESS INCONTINENCE**
Main International Patent Class: **A61B-017/068**
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Fulltext Availability:
Detailed Description
Claims

English Abstract
A **staple** applicator suitable for use in treating female stress incontinence by surgery comprises an elongate probe...

...probe (2) being formed at a first extremity (3) thereof to carry releasably a surgical **staple** (5). The probe is of S-shape in the first end region (8) adjacent to...

...first extremity (3), and is dimensioned such that when the first extremity (3) holding a **staple** (5) is **inserted** into the **vagina** (12) and upwardly through an incision (15) in the **vaginal wall** of a patient in the lithotomy **position** , the opposite, second extremity (9) of the probe can be **positioned** vertically below the first extremity (3) and clear of the patient to enable an orthopaedic...
...on the second extremity (9) to urge the first extremity (3) upwards to apply the **staple** into the pubic ramus/pubis, the **staple** then being released from the first extremity to allow withdrawal of the probe. The probe can be provided with a **staple** retainer (Figures 6, 7) in the form of a retractable strip (31). ...

French Abstract
...maniere que lorsque la premiere extremite (3) portant une agrafe (5) est introduite dans le **vagin** (12) et est remontee par une incision (15) dans la paroi **vaginale** d'une patiente en **position** de lithotomie, la deuxieme extremite opposee (9) de la sonde peut etre **placee** verticalement au-dessous de la premiere extremite (3) et de maniere a degager la patiente...

Detailed Description

STAPLE APPLICATOR FOR USE IN THE SURGICAL TREATMENT OF FEMALE STRESS INCONTINENCE

This invention relates to a **staple** applicator for use in treating female stress incontinence. The applicator enables a **staple** to be **inserted** into the superior pubic ramus/pubis through a **vaginal** incision, thereby lifting the **vaginal** muscle upwards to re- **attach** the bladder to the pubis. In particular the applicator enables such a novel colposuspension to...

...incision in the lower abdomen.

The colposuspension is performed with the patient in the lithotomy **position** and the inventive **staple** applicator is shaped to permit initial **insertion** of the **staple** through the **vaginal** incision and then to enable an impact to be applied to the **staple** to **secure** the **staple** in **position** .

CLINICAL PROBLEM

Many women who undergo childbirth in the normal passage of delivery **stretch** their **pelvic floor muscles** to an extent that results in urinary incontinence. The sphincter apparatus in the female is much weaker than in the male and continence relies on the bladder maintaining its **position** as an intra-abdominal organ. The bl adder (and other pelvic organs) are supported by the **pelvic floor** muscles and when these muscles are weakened so the **bladder** and urethra (and sphincter **muscles**) **descend** through the **pelvic floor** . A physical stress such as coughing, sneezing, laughing, climbing stairs or even walking can increase...

...on repositioning and supporting the bladder. The overall success rate in good hands has been **approximately** 80%. In 1956 Burch described his operation called the colposuspension. This involves an incision of...

...down to the bladder which is itself mobilised (dissected free from surrounding structures) and re- **attached** to the inner surface of the pubis with 4 to 6 **sutures** between the **vaginal** muscle **wall** (the colpos) and the pectinate line (a ligament which will allow penetration by a **suture** needle). In view of the amount of dissection etc., a catheter is **inserted** for a period of 7 to 10 days.

More recently, Stamey in 1981 described his...

...the bladder but with much less surgical trauma. With the anaesthetised patient in the lithotomy **position** (lying on the back with the legs bent up and supported in slings) two small...

...made in the lower abdomen and a long blunt needle passed down through the abdominal **wall** and through the **vaginal** muscle at the level of the neck of where the urethra is **attached** . Nylon slings are threaded onto the needle on either side and when the nylon is tied at the top, the **vaginal** muscle is suspended from the anterior abdominal wall.

The problems encountered with this procedure have...tight, and breaking nylon, which sometimes lasts for only two years in the body.

THE **STAPLE** COLPOSUSPENSION

T
L have devised a novel colposuspension which can conveniently be termed a' **staple** colposuspension'.
The patient is anaesthetised and **placed** in the lithotom **position** .

y
A balloon catheter is **inserted** into the bladder and this identifies the level of the bladder neck. Two I cm incisions are made through the mucosa (lining layer of the **vagina**) at a distance of a few centimetres from the entrance thereto. The **staple** **attached** to my inventive applicator is **placed** into one of the **vaginal** incisions and the **vaginal** muscle is lifted upwards. The **staple** is **inserted** into the superior pubic ramus/pubis by tapping the opposite end of the **staple** applicator with an orthopaedic mallet.

This procedure is repeated with a second **staple** **inserted** through the other incision whereby the **vaginal** muscle is used to make a sling to support the bladder.

According to one aspect of the invention a **staple** applicator suitable for use in treating female stress incontinence by surgery comprises an elongate probe...

...material, the
probe being adapted at a first extremity thereof to carry releasably a surgical **staple** , the probe being of substantially S-shape in the first end region adjacent to said first extremity, the probe being dimensioned such that when the first extremity holding a **staple** is inserted into the vagina and upwardly through an incision in the **vaginal** **wall** of a patient in the lithotomy **position** , the opposite, second extremity of the probe can be **positioned** substantially vertically below said first extremity and clear of the patient to enable an orthopaedic...

...impacted on the second extremity
to urge the first extremity substantially upwards to apply the **staple** into the pubic ramus/pubis, the **staple** then being released from the first extremity to allow withdrawal of the probe.

The curve...

...curved shape will in general provide greater
rigidity to transmit the mallet blow to the **staple** .

The shank of the probe which is contiguous with the S-shaped portion is preferably extremity.
A second aspect of the invention comprises a **staple** applicator in accordance with the first aspect of the invention in combination with a surgical **staple** , the first extremity carrying the surgical **staple** with the prongs of the **staple** extending away from the first extremity.

The **staple** prongs are preferably each formed with barbs.

The barbs are preferably created by forming recesses of wedge shape in the prongs when the **staple** is formed by bending of thick wire material. Such a **staple** has been used previously, but in a larger size.

A **staple** applicator and a modification thereof both in accordance with the invention will now be described...

...perspective view of the first extremity of the probe showing the socket to receive a **staple** ,
Figure 3 is a view similar to Figure 2 but showing the **staple** held in the socket,
Figure 4 schematically shows a patient in the lithotomy **position** and with the applicator **inserted** through an incision in the **vaginal wall**

to the operative **position** in which a blow is applied to the applicator for **securing** the **staple** ,
Figure 5 is a side elevation of a **staple** ,
Figure 6 is a side elevation of a modified applicator provided with a **staple** retainer, and
Figure 7 is a view of the **staple** retainer looking from the left in Figure 6.

With reference to Figures 1 and 4, the **staple** applicator 1 comprises an elongate probe 2 bent from a rod of surgical steel and...

...4 of surgical steel, the socket member 4 being shaped to hold releasably a surgical **staple** 5, as shown in Figure 3, with the prongs 6 of the **staple** directed axially away from the first extremity 3.

The probe comprises a first end region...

...first curved portion 10 are such as to enable the socket member 4 holding a **staple** to be introduced into the **vagina** 12 of a patient 13 supported in the lithotomy **position** on a table 14, the staple being pushed through an incision 15 made in the **vaginal wall** at a **position** spaced at about 30 mm from the entrance 16 to the **vagina** . The shank 7 will initiall be held in the **position** indicated by the line 71 in Figure y
4, and then moved progressively to the **position** shown by bold lines in Figure 4 as the first curved portion 10 is moved...

...It will be appreciated that the arcuate shape of the first curved portion 10 facilitates **insertion** of the staple to the operative **position** with minimal disturbance to the **vaginal wall** itself. As the **staple** is urged upwards it carries with it part of the **vaginal** muscle to lift up the bladder 16.

With the probe in the **position** shown in bold outline in Figure 4, a mallet blow can be applied to the...

...probe in the direction indicated by the arrow X, that is, substantially along a line **connecting** the second and first extremities 9, 3 so as to drive the **staple** generally upwardly into the pubic ramus/pubis. This procedure is repeated with a second **staple inserted** through a further incision, not shown, in the **vaginal wall positioned** adjacent
to incision 15, so as to create a sling from the **vaginal** muscle which holds the bladder in a more normal, raised **position** .

Although it is convenient that the portion 11 is smoothly curved as

shown, since the...

...for
transmitting the force of the mallet blow from the second extremity 9 to the **staple** .

The length o-If the shank 7 is desirably such that the second extremity 9...

...a slot 18 of
semicircular cross-section to receive snugly the bridge 19 of a **staple** of the form shown in Figure 5. The slot 18 opens outwards, in the direction...

...opposing side faces with semicircular recesses 20 to
receive the respective limbs 21 of the **staple** in the region where the limbs 21 **connect** with the bridge 19.

In order to provide the socket member 4 with a degree of resilience to enable the grip imparted by the castellations 19 on the **staple** to be adjusted, the socket member 4 is formed with a longitudinal through-slot 22 terminating in a transverse through-drilling 23.

A set **screw** 24 extends in ...member 4
is formed, and enables adjustment of the relative spacing of castellations 19. The **screw** 24 is adjusted such that the **staple** is firmly held by the member 4 yet such that once the **staple** 5 has been **secured** in **place** the probe can simply be removed by firm pressure to part the socket member 4 from the gripping **staple** .

Whilst the **staple** can be of any convenient form, the **staple** shown in Figure 5 is preferred. The illustrated **staple** is a smaller version of a **staple** designed by Howemedica/London Hospital, but other designs of **staple** would be possible.

The. **staple** 5 is bent from medical grade stainless steel in wire form, the limbs 21 being...
...of the limbs 21 to define
respective barbs 27.

It will be appreciated that the **staple** is firmly held in the socket 4 by the the castellations 19 with the limbs 21 directed away from the first extremity. The **staple** cannot pivot about the bridge 19 because it is held against such pivoting by the...

...2 of similar shape to that of Figure
1, but the applicator also incorporates a **staple** retainer 30 for assisting in holding a **staple** 5 captive in the first extremity 3 of the probe during manoeuvring of the probe...

...32 of a reduced width corresponding to the
inside spacing between the limbs 21 of **staple** 5 such that the strip extremity 32, as shown in Figure 6 is capable of biassing the **staple** 5 against the first extremity 3 of the probe.

The strip 31 is rigidly **secured** to a straight length of tube 33 which is axially slidable on the shank 7...

...to a
collar 34 which is also slidable on probe 2. The collar 34 is

positioned initially on bend 11, and a strip support face 35 of the collar is shaped...

...portion 36 of the strip so as to provide a small resilient biassing of the **staple** 5 towards extremity 3.

in use the surgeon can use the probe to carry the **staple** to the **position** of **insertion** , and then the tube 33 is drawn down the shank 7 thereby drawing the strip 31 away from extremity 3, to disengage the strip extremity 32 from the **staple** 5.

Claim

1 A **staple** applicator suitable' for use in treating female stress incontinence by surgery comprises an elongate probe...

...probe (2) being adapted at a first extremity (3) thereof to carry releasably a surgical **staple** (5), the probe being of substantially S-shape in the first end region (8) adjacent...
...extremity (3), the probe being dimensioned such that when the@first extremity (3) holding a **staple** (5) is **inserted** into the **vagina** (12) and upwardly through an incision (15) in the **vaginal** **wall** of a patient in the lithotomy **position** , the opposite, second extremity (9) of the probe can be **positioned** substantially vertically below said first extremity (3) and clear of the patient to enable an...

...the second extremity (9) to urge the first extremity (3) substantially upwards to apply the **staple** into the pubic ramus/pubis, the **staple** then being released from the first extremity to allow withdrawal of the probe.

2 A **staple** applicator as claimed in claim 1 characterised in that probe comprises a length of rod which has been bent to define the S-shaped first end region (8).

3 A **staple** applicator as claimed in claim 2 in which the probe is constructed from a rod...

...elongate socket member is welded at one end to provide the first extremity.

4 A **staple** applicator as claimed in any of the preceding claims characterised in that the length of...

...as measured between the first and second extremities is greater than 200 mm.

5 A **staple** applicator as claimed in any of the preceding claims characterised by a releasable **staple** retainer (30) adapted to retain the **staple** captive to the first extremity,
. A **staple** applicator as claimed in claim 5 characterisedlin that the **staple** retainer (30) comprises a strip of resilient material of which one end (32) is adapted to engage with a **staple** (5) and to be retracted from the **staple** .

7 A surgical **staple** applicator as claimed in any one of the preceding claims in combination with a surgical **staple** (5), the

first extremity (3) carrying the surgical **staple** (5) with prongs (6) of the **staple** extending away from the first extremity.

8 The combination of claim 7 characterised in that the **staple** prongs are each formed with barbs (27).

9 A **method** of **inserting** a **surgical staple** using a surgical **staple**
applicator as claimed in claim 1.

39/3,K/5 (Item 5 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS
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01270346
Suture insertion **device for the treatment of urinary stress incontinence**
Vorrichtung zur Einfuhrung chirurgischer Nahfaden zur Behandlung stressbedingter Harninkontinenz
Dispositif d'introduction de suture pour le traitement de l'incontinence urinaire d'effort
PATENT ASSIGNEE:
Kaladelfos, George, (3156660), 17 Brighton Avenue, Toronto, New South Wales 2283, (AU), (Applicant designated States: all)
INVENTOR:
Kaladelfos, George, 17 Brighton Avenue, Toronto, NSW 2283, (AU)
LEGAL REPRESENTATIVE:
Driver, Virginia Rozanne et al (58902), Page White & Farrer 54 Doughty Street, London WC1N 2LS, (GB)
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Suture insertion **device for the treatment of urinary stress incontinence**
INTERNATIONAL PATENT CLASS: **A61B-017/04** ...

...ABSTRACT 12) defining an arc corresponding to the general curvature of a passage between the anterior **vaginal wall** and the abdomen of a female patient and having a cutting tip (14) at one...

SPECIFICATION The present invention relates to a **surgical** instrument for and a **method** of placing elongate elements in a patient, more particularly, but not exclusively in the field of obstetrics and gynaecology and more particularly the invention relates to an apparatus and **method** for the **treatment** of female urinary incontinence.
Female incontinence generally occurs due to deterioration of or damage to muscle tissue and **ligaments** in the **pelvic** region. This results in involuntary leakage of urine from the urethra due to lack of...

...and US Patent 5,899, 909 (Claren). United States Patent 5,112,344 describes a **method** and apparatus for **treating** female incontinence. The surgical instrument for the application of a filamentary element into the body...

...receivable in the shaft and adapted at one end to receive a filamentary element. The **method** of **treating** female incontinence comprises looping a filamentary element between the **wall** of the **vagina** and the rectus abdominis sheath in the anterior wall of the abdomen whereby it masses to each side of the urethra, adjusting the loop to bring the **vaginal wall** and the urethra into the correct spatial relationship to the pubis allowing the development of scar tissue between the **vaginal wall** and the anterior wall of the abdomen pubic symphysis and removing the filamentary element.

The Claren Patent, United States Patent 5,899,909, also describes a **surgical** instrument and a **method** for **treating** female urinary incontinence. The instrument comprises a shank having a handle at one end thereof...

...portion of the shank and are intended to be passed into the body via the **vagina** , each element being dimensioned to extend from the inside of the **vaginal wall** over the back of the pubic bone to the outside of the abdominal wall. When practicing the method the tape is passed into the body via the **vagina** first at one end and then at the other end at one side and the other. respectively, of the urethra to form a loop around the urethra, **located** between the urethra and the **vaginal wall** . The tape is extended over the pubis and through the abdominal wall and is tightened...along a line which is perpendicular to the shaft axis.

In one arrangement the handle **attachment** means comprises **screw** threads formed on the outer surface of the shaft. Preferably the shaft tapers divergently towards...

...a female patient to form a sling or loop between an anterior surface of the **vaginal wall** , around the back of the pubic bone to the outside of the abdominal wall, said...

...having a longitudinally extending internal passage. into the patient through the anterior surface of the **vaginal wall** , so as to pass on one side of the urethra between the pubis and the...

...the patient;

e) inserting the shaft into the patient through the anterior surface of the **vaginal wall** , so as to pass on the other side of the urethra between the pubis and...

...of para-urethral incisions are made at or very near each anterior sulcus of the **vagina** . A tunnel is created by blunt dissection between the urethra and the **vaginal wall** , extending from each **vaginal** incision. Prior to conducting step (e) the end of the filamentary element adjacent the **vagina** is passed through that tunnel and out of the second of the two incisions. Step...handle 20 including a handle portion 22 which will be gripped, in use, by a **surgeon** performing a **surgical procedure** with the instrument 10. The handle 20 also includes a shaft portion 24 having a...

...butt up against the end 17 of the shaft and the union nut 32 will **screw** onto the threads 16 to **securely** hold the handle 20 to the shaft 12. To remove the handle from the shaft...

...selected so that the shaft is able to pass through an anterior surface of the **vaginal wall** behind the pubis to emerge through the abdominal wall. The radius of curvature is selected require an actual cutting **operation** , but any manufacturing **process** which provides a **surgically** sharp angled cutting tip is to be considered as falling within the scope

of the...

...manner described above and the shaft will be inserted into a patient typically through the **vagina** from a position inwards from the urethro vesical junction, the cutting tip passing into the...

...is shown in figure 4 of the drawings.

Where it is desired to conduct the **operation** using a two incision **procedure** , two para-urethral **vagina** incisions will be made at or very near each anterior sulcus of the **vagina** . A tunnel will then be formed by blunt dissection between the urethra and the **vaginal wall** . the tunnel extending between the two para-urethral incisions. Typically the two incisions and the...

...be withdrawn from the patient from either the abdominal side of the patient or the **vaginal** side of the patient and the shaft is specifically shaped and configured for this purpose...

...be possible. Other alternatives are discussed below.

Where the two incision process is preferred. the **vaginal** end of the filament will be **guided** through the aforementioned tunnel and out of the second incision. The handle will then be...

...side of the shaft 12 would face towards the patient's bladder during the aforementioned **surgical procedure** .

During ...of unitary construction. Also, no disconnection of the device is necessary mid-way through the **surgical procedure** . However, the twisting forces which can be applied to the device will be reduced on ...so as to rest within the patient, then the shaft may be withdrawn from the **vaginal** side of the patient. This will require only a single abdominal side incision. Indeed, it may be possible to perform the procedure from the **vaginal** side of the patient exclusively provided it is possible to cause a filamentary material to...

...CLAIMS to the handle attachment means of the shaft and being disconnectable from the shaft during **surgical procedures** ;

a flexible threading element insertable into and through said internal passage and adapted to be...

...A surgical instrument according to any one of claims 13 to 16 wherein the handle **attachment** means comprises **screw** threads formed on the radially outer surface of the shaft.

18. A surgical instrument according...internal passage into the patient through a first incision in the anterior surface of the **vaginal wall** , so as to pass on one side of the urethra between the pubis and the...

...the patient;

e) inserting the shaft into the patient through the anterior surface of the **vaginal wall** , so as to pass on the other side of the urethra between the pubis and...

...to conducting step c) a second incision is made through the anterior surface of the **vaginal wall** and a tunnel is created between the first and second incisions, and the end of the filamentary element adjacent the **vagina** is passed through said tunnel and out of said second incision.

33. A method according...

...to be used to pass a filamentary element through a female patient through an anterior **wall** of the **vagina** to an anterior **wall** of

the abdomen through the wall thereof into the interior passage wherein the filamentary element...

39/3,K/26 (Item 26 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
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00812419 **Image available**
SURGICAL METHOD FOR TREATING URINARY INCONTINENCE, AND APPARATUS FOR USE IN SAME
TECHNIQUE CHIRURGICALE DE TRAITEMENT DE L'INCONTINENCE URINAIRE ET APPAREIL D'UTILISATION ASSOCIE
Patent Applicant/Assignee:
DEXTERITY SURGICAL INC, Suite 1300, 12961 Park Central, San Antonio, TX 78216, US, US (Residence), US (Nationality)
Inventor(s):
THOMPSON Ronald J, 110 Stanbery Ridge, Ft. Thomnas, KY 41075, US,
FADEM K C, 1216 Marsh Trail Circle, Atlanta, GA 30328, US,
CAMPBELL Michael J, 1606 Greenbrook Place, Louisville, KY 40245, US,
Legal Representative:
MILLER Martin J (et al) (agent), Dinsmore & Shohl LLP, 1900 Chemed Center, 255 East Fifth Street, Cincinnati, OH 45202, US,
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Detailed Description
Claims

Detailed Description
... somewhat snug such that the suture tails may be tensioned between anchor 509 and the **anchor - insertion** tool once the **anchor** has been **inserted** into tissue (e.g. , in a manner similar to that shown in Fig. 20) to facilitate **suture** retrieval into the patient's **vagina** .
60
A **suture** 51 0 threaded through loop portion 543 of **anchor** 549 should also have a sufficient length such that after anchor 509 has been inserted into tissue and the anchor- **insertion** tool of Fig. 50 withdrawn away from the **anchor** , a portion of each tail of **suture** 51 0 will remain within the **anchor - insertion** tool in a manner similar to that shown in Fig. 20. The **suture** tails may then be retrieved into the **vagina** in the same manner as shown in Fig. 20.

Figures 54-56 depict an alternative embodiment of an anchor- **insertion** tool for use with helical **anchor** 509. This embodiment generally comprises an elongate member 650 having an **anchor** -receiving tip 652 at its distal end. The

proximal end of the **anchor** -receiving tool shown in Figs. 54-56 may be configured similar to that shown in...

...in the embodiment of Figs. 54-56, slots 654 extend through the entire wall of **anchor** -receiving tip 652 to the exterior surface of the **anchor** -receiving tool. Once again chamber 657 may be sized such that an **anchor** 509 **inserted** therein will not extend beyond distal end wall 656, and loop portion 543 of the **anchorwill** be **positioned** adjacent or even against bottom wall 653 of chamber 657.
Rather than positioning the **suture** within a bore extending through the **anchor - insertion** tool, the embodiment of Figs. 54-56 allows the **suture** to extend
along the exterior surface of the **anchor - insertion** tool, similar to the
embodiments described previously (e.g., Fig 8). Although the **suture** tails may be held against the outer surface of the **anchor - insertion** tool by hand, one or more elastic bands 661 (see Fig. 56) may be used to hold **suture** 51 0 against the exterior surface of the **anchor - insertion** tool. Any number of elastic bands may be employed, and shouldered depressions of the type shown, for example, in Fig. 8 at 59 and 60, may be provided along the **anchor - insertion** tool such that one or more elastic bands may be held within the shoulder depressions as 61
described previously. The elastic bands will help to control the **suture** tails, as previously described herein.

The **anchor - insertion** tool of Fig. 50 may include a dissection pad 551 at
its proximal end. Dissection...

...may be used to
dissect the space of Retzius 8, as described previously, prior to **insertion** of one or more helical **anchors** into tissue (such as into Cooper's ligament). Blunt
dissection using absorbent pad 551 may be used in **place** of the balloon dissection described previously herein, or may be used in conjunction with balloon dissection. Thus, the **anchor - insertion** tool of Fig. 50 provides for not only **insertion** of a helical **anchors** , but also for blunt dissection prior to **anchor insertion** .

62
An urethropexy procedure using the helical tissue **anchor** shown in Fig.

49 and the **anchor - insertion** tool of Figs. 50 or 54 may be performed similarly to the procedures described above. However, since the helical **anchor** is **inserted** into tissue, rather than bone, there is no need to create any type of bore in the pubic bone of the patient. Rather, one or more **anchors** 509, each having a **suture** threaded through loop portion 543 of the **anchor** (as shown in Fig. 49), is **inserted** into Cooper's ligament in the manner described above. Preferably, a single helical **anchor** 509 is **inserted** into each of the patient's Cooper's ligaments 1 1 (see Fig. 22).
Once an anchor has been **secured** within Cooper's ligament, the **anchorinsertion** tool is withdrawn a short distance away from Cooper's ligament such that each **suture** tail of **suture** 510 will extend between anchor 509 and the **anchor - insertion** tool (similar to that shown in Fig. 20). Thereafter, each **suture** tail may be retrieved into the **vagina** using the **suture** retriever described previously. In addition, a **template** of the type described previously herein may be used to **guide**

proper **suture placement** in the periurethral tissue. Once both **suture** tails have been retrieved into the **vagina** , the **suture** tails may be tied in the same manner as before. Excess **suture** is then cut, such as by using the device shown and described in U.S. Patent No. 5,860,993.

It should be pointed out that the **anchor - insertion** tools shown in Figs. 50 and 54 may be used laparoscopically to **insert** a helical **anchor** into Cooper's ligament, such as through the operative channel of a laparoscope. Alternatively, these **anchor - insertion** tools, as well as the helical **anchors** associated therewith, may be used in an open procedure, or in an mini-laparotomy procedure. In a mini-laparotomy procedure, the anchor- **insertion** tool is **inserted** through a small incision, rather than through the operative channel of the laparoscope.

The foregoing...
...modifications and
variations are well within the scope of the present invention. For example, the **anchor - insertion** tools of the present invention may be used with any of a variety of **anchor** types, provided that the **anchor** -receiving tip is modified accordingly.

For example, the **anchor** -receiving tip of the tool shown in Fig's 36-38 herein may be modified...

...shown in U.S. Patent No. 5,100,417, thereby permitting the use of the **anchor** of this patent with the **insertion** tool of the presentinvention.
Similarmodificationstoanchor-receivingtip352@wouldenable onetousevariousothertypesofanchors,andsuchmodificationsarewell-within the scope of the present...

Claim
1 . A helical anchor for **attaching** a **suture** to tissue, comprising:
(a) a helical portion comprising a plurality of helical coils, and having ...

...b) a loop portion at the proximal end of said helical portion.

2 The helical **anchor** of claim 1, wherein-the diameter of said loop portion is greater than the diameter of said helical portion.

3 The helical **anchor** of claim 1, wherein said loop portion is substantially normal to said helical portion.

4 An anchor- **insertion** tool forsecuring an **anchorto** a structure within a patient's body, comprising an elongate shaft having distal and proximal ends, an **anchor** -receiving tip at said distal end, and a flexible dissection pad at said proximal end.

5 The **anchor - insertion** tool of claim 4, wherein said **anchor** -receiving
tip comprises a chamber for receiving an anchor therein.
6 The **anchor - insertion** tool of claim 5, wherein said **anchor** -receiving
tip further includes at least one slot extending radially away from said chamber.

7 The **anchor - insertion** tool of claim 6, wherein said **anchor** -receiving
tip includes a pair of said slots extending radially away from opposite

sides of
said chamber,

8 The **anchor - insertion** tool of claim 4, further comprising a lurnen extending at least partially through the interior of said shaft.
65
. The **anchor - insertion** tool of claim 4, wherein said dissection pad is absorbent.

10 A loaded anchor-insertion tool, comprising, in combination, the anchor- **insertion** tool of claim 4, and a helical **anchor** engaged with said anchorreceiving tip.

11 The loaded **anchor - insertion** tool of claim 1 0, further comprising a
suture extending away from said anchor.

12 A **surgical method** for **securing** an **anchor** in a patient, comprising:
(a) providing the **anchor - insertion** tool of claim 4;
(b) inserting the proximal end of said **anchor - insertion** tool into the patient;
(c) dissecting tissue away from an **anchoring** site using said dissection pad
(d) removing said **anchor - insertion** tool from the patient;
(e) **inserting** the anchor-receiving tip of said anchor-insertion tool into the patient, said **anchor** -receiving tip having an **anchor** loaded thereon or
I 0 therein; and
(f) **securing** said **anchor** in the patient at said anchoring site by manipulating said **anchor - insertion** tool.

13 The surgical **method** of claim 12, further comprising the step of providing a **suture** , said **suture** extending away from said **anchor** .

14 The surgical **method** of claim 12, wherein said **anchor** comprises a helical tissue **anchor** , and further wherein said **anchor** is **secured** in the patient by rotatingly urging said **anchor** into soft tissue.
66
. The surgical **method** of claim 14, wherein said **anchor** is **secured** to Cooper's ligament, and further comprising the step of supporting the patient's urethra using said **suture** .

16 A **surgical** method for **treating** urinary incontinence, comprising:
(a) **securing** a **suture** within a patient's body by a helical **anchor** ;
(b) retrieving a portion of said **suture** into the patient's **vagina** ; and
(c) supporting the patient' s urethra using said **suture** .

17 The surgical **method** of claim 16, further comprising the step of **securing** said helical **anchor** to Cooper's ligament.

18 The surgical **method** of claim 16, further comprising the step of **securing** said helical **anchor** to Cooper's ligament under laparoscopic vision.

19 The surgical **method** of claim 17, wherein said helical **anchor** is **secured** to Cooper's ligament through the operative channel of a laparoscope.

20 The surgical **method** of claim 16, wherein a pair of tails of said **suture** extend away from said **anchor** , and wherein said step of retrieving a portion of said **suture** into the patient's **vagina** comprises snaring one of said tails with the retrieving end of a suture retriever **vaginally inserted** into the patient's body, and thereafter withdrawing said retrieving end into the patient's **vagina** so as to retrieve said tail into the vagina.

21 The surgical **method** of claim 20, wherein each of said **suture** tails is separately retrieved into the patient's **vagina** , and wherein the step of supporting the patient's urethra using said suture comprises **securing** said **suture** to the periurethral tissue adjacent the urethra by tying said tails to one another within the vagina.

67

. The surgical **method** of claim 20, wherein said helical **anchor** has an aperture through which said **suture** extends such that said pair of **suture** tails extend away from said **anchor** .

23 A surgical **method** for elevating a patient's urethra in order to treat
urinary incontinence, comprising:
(a) **inserting** a laparoscope into a patient;
(b) **securing** a helical **anchor** to Cooper's ligament within the patient under laparoscopic vision; and
(c) suspending the periurethral tissue adjacent the patient's urethra
1 0 from said **anchor** , thereby elevating the urethra to the desired angle; wherein the periurethral tissue is suspended from said **anchor** by a **suture** .

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39/3,K/29 (Item 29 from file: 349)
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00535492 **Image available**
TUCK AND FOLD FASCIA SHORTENING FOR INCONTINENCE
RACCOURCISSEMENT DE FASCIA PAR PLISSEMENT ET REPLIEMENT PERMETTANT DE TRAITER L'INCONTINENCE

Patent Applicant/Assignee:
SURX INC,
Inventor(s):
CARTER Garry L,
DENSOW David C,
CLAUDE John,
DO Paul L,
MORRISON George A,

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Claims

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English Abstract
Improved devices, **methods** , and systems for the **surgical** **treatment** of urinary incontinence generally enhance the support provided by the natural tissues of the **pelvic** **floor** without directly applying compressive pressure against the urethra. The invention provides probes (50) for forming...

...Adhesions can maintain the enhanced support provided by the plication after reabsorption of a temporary **fastener** (30) (such as a reabsorbable **suture** , **staple** , or the like). The plicated probe draws the tissue inward to provide a uniform plication...

French Abstract
...par le plissement apres reabsorption d'un element de fixation temporaire (30) (telle qu'une **suture** reabsorbee, une agrafe, ou analogue). La sonde de plissement tire le tissu vers l'interieur...

Detailed Description
... BACKGROUND OF THE INVENTION
I Field of the Invention
The present invention generally relates to **medical** devices, **methods** and
systems, particularly for the **treatment** of urinary incontinence.

Urinary incontinence arises in both men and women with varying degrees ZD...

...structures which support the genitourinary tract.

Specifically, pregnancy can result in inelastic stretchino of the **pelvic floor** , the external sphincter, and the tissue structures which support the bladder and bladder neck region...

...or
unacceptable, the patient may undergo surgery to correct the problem. A wide variety of **procedures** have been developed to **correct** urinary incontinence in women. Several of these procedures are specifically intended to support the bladder neck region. For example, **sutures** , straps or other artificial structures are often looped around the bladder neck and **affixed** to the pelvis, the endopelvic fascia, the ligaments which support the bladder, or the like. Other **procedures** involve **surgical** injections of bulking agents, inflatable balloons, or other elements to mechanically support the bladder neck...

...support of
the bladder is the Kelly plication. This technique involves midline plication of the **fascia** , particularly for repair of central **defects** . In this transvaginal procedure, the endopelvic fascia from either side of the urethra is **approximated** and **attached** together using silk or linen **suture** . A similar procedure, anterior colporrhaphy, involves exposing the pubocervical fascia and reapproximating or plicating portions of this tissue from either side of the midline with absorbable **sutures** . While the Kelly plication and its variations are now often used for **repair** of **cystocele** , this **procedure** was originally described for the **treatment** of incontinence.

Each of these known **procedures** has associated shortcomings. **Surgical operations** which involve midline plications or direct **suturing** of the tissue structures supporting the urethra or bladder neck region require great skill and...
...intentional voiding is made difficult or impossible. Balloons and other bulking agents which have been **inserted** can migrate or be absorbed by the body. The presence of such **inserts** can also be a source of urinary tract infections.

5 For these reasons, it would be desirable to provide improved devices, systems and **methods** for **treating** urinary incontinence in men and women. In particular, it would be desirable to provide **techniques** for **treating** urinary incontinence which did not artificially compress or obstruct the urethra, but which enhanced the...

...were described in
FEMALE UROLOGY, 2nd Ed., by Shlomo Raz (1996). This reference also describes **techniques** of **surgical repair** for **treatment** of **cystocele** (including the Kelly plication and the Burch procedure) on pages 340-342, while various alternative...

...Patent No.

5@035@696.

SUMMARY OF THE INVENTION
The present invention provides improved devices, **methods** , and systems for the **surgical treatment** of urinary incontinencc. The **techniques** of the present invention generally enhance the support provided by the natural tissues of the **pelvic floor** without directly applying compressive pressure against the urethra. The invention provides methods and probes that...

...In the preferred embodiments, the plication probes impose a predetermined level of trauma to the **approximated** tissues so as to promote the forniation of adhesions. These tough fibrous scar tissues can ...

...support provided by the reduction in effective support tissue length after reabsorption of a temporary **fastener** (such as a reabsorbable **suture** , **staple** , or the like). The use of a plicating probe which draws the tissue laterally inward toward the probe and **affixes** the plication not only speeds up the procedure, but also provides a fold having a...

...fold depth being within a predetermined range. The first and second tissue portions are then **affixed** together with the probe to decrease a dimension of the tissue such that incontinence is...
...laterally inward to fold either towards or away from the probe, the tissue often being **affixed** into two separate folds disposed on opposite sides of (and separated from) the urethra. The **approximated** portions of the endopelvic fascia may be **affixed** together by advancing a **fastener** from the probe at least partially through each tissue portion. Suitable **fasteners** include **suture** , **staples** , barbed **tacks** , helical coils, and the like, and will preferably be at least partially bio-absorbable. Where bioI 0 absorbable **fasteners** are used, the probe will preferably also promote adhesion formation between the first and second...

...endopelvic fascia extending laterally on first and second sides of the urethra. The therapy comprises **affixing** a first surface region of the endopelvic fascia on the first side of the urethra...

...endopelvic fascia which is also on the first side of the urethra. These regions are **affixed** with a first **fastener** to as to decrease an effective length of the first side. The shortened effective lengths...

...The urethra may be laterally deflected, or the treatment may simply compensate for an asymmetric **stretching** of the **tissue** . More commonly, a third surface region of the endopelvic fascia on the second side of the urethra is **affixed** to a fourth surface region of the endopelvic fascia on the second side of the urethra with a second **fastener** so as to decrease an effective length of the second side.

In another aspect, the...and/or away from the probe.

The plication tool will also often include means for **affixing** the inward drawn region in the small configuration. The **affixing** means will typically comprise an electrode, adhesive, **suture** , **staple** , helical coil, barbed **tack** , or the like. In many of these embodiments, the **affixing** means will be reabsorbable, and the plication tool will further comprise means for promoting adhesion...

...a first effective length of an endopelvic fascia between a urethra and a first arcus **tendinous** fascia **pelvis** . A second effective length of the endopelvic fascia between the urethra and a second arcus **tendinous** fascia **pelvis** is also decreased. The first and second lengths are separated from the urethra so as...

...which includes the steps of forming a laterally offset fold in the endopelvic fascia and **affixing** the fold so as to inhibit incontinence.

Fig. I is a lateral cross-sectional view...
...a cross-sectional view of a patient suffering from urinary stress

incontinence due to inelastic **stretching** of the endopelvic fascia.

Fig. 3 shows a known **method** for **treating** urinary incontinence by **affixing** **sutures** around the bladder neck.

Fig. 4 illustrates improved bladder support provided by decreasing an effective...

...invention.

Figs. 5 and 6 illustrate the Kelly plication, a known method for supporting the **bladder** for patients having **tears** or other central defects, but which may directly compress the urethra and make voluntary voiding...

...plication probe and method for its use in which rollers having a roughened surface or **protrusions** abrade the **tissue** surface and draw the endopelvic fascia inward while a smooth retainer structure extends to control...

...desired direction, the roughened retainer structures abrading the fascia to promote adhesions upon resorption of **staples** .

Figs. I OA- I OF schematically illustrate a plication tool and method in which forceps...

...into a fixed channel defined by slide surfaces, and in which the endopelvic fascia is **affixed** in the folded configuration at least in part by transmitting a bipolar current between the...

...cross-sectional view through a fold in the endopelvic fascia in which the fold is **affixed** using a reabsorbable barbed **tack** .

Fig. 12 is a cross-sectional view through a fold in the endopelvic fascia in which the fold is **affixed** using a helical coil.

Fig. 13 is a cross-sectional view schematically illustrating the structure...

...surgeons skill, experience, and the like. These probes will also often include a mechanism to **affix** the **approximated** tissues together, often using **fasteners** , electrosurgical potential, adhesive, or the like. Where the probe further includes a mechanism for promoting the formation of adhesions, the **affixing** mechanisms need only temporarily **affix** the fold as the tough, fibrous, adhesions can ...of therapies, including for inguinal hernias, abdominal hernias, ligament shortening, shoulder capsule reduction, correction of **paravaginal** **defects** , and stomach reduction. The most immediate application for the invention, however, will be to enhance...

...urethra so as to inhibit urinary incontinence.

The pelvic support tissues which generally maintain the **position** of much
of the genital urinary tract, and particularly the **position** of urinary bladder B, are illustrated in Fig. 1. Of particular importance for the method...

...of a fold towards the front. Alternatively, repositioning of bladder B to a more forward **position** may be affected by selectively plicating the

dorsal portion of the endopelvic fascia EF to...

...the endopelvic fascia EF adjacent the bladder neck and urethra UR can remain free of **sutures** or other artificial support structures which might directly compress the urethra.
An alternative known procedure for enhancing the support of the bladder, particularly as a therapy for **cystocele** , is the Kelly plication, as illustrated in Figs. 5 and 6. These techniques involve midline plication of the endopelvic fascia. In the original Kelly plication, the midline of the **vaginal wall** is incised and the endopelvic fascia is then dissected for between about 2 cm to...

...bladder neck. Lateral portions of the endopelvic fascia from either side of the urethra are **approximated** with silk or linen **suture** . Optionally, a relatively large (such as a 16 Fr) catheter may be **placed** within the urethra prior to positioning and tying of the **sutures** in an effort to prevent subsequent stenosis. Nonetheless, as can be seen with reference to Fig. 6, the **sutures** extend across the midline and thereby potentially directly compress the urethra once the procedure is...

...Several researchers have attributed continence during coughing to rapid contraction in the muscles supporting the **pelvic floor** . However, other studies have shown that there is no **pelvic floor** contraction during stress, and that continence is instead maintained by the **position** of the proximal urethra.

Since the increasing urethral pressure is not caused by muscles tightening...that timing of pressure pulses, rather than the total pressure or muscular contraction of the **pelvic floor** , may be one of the critical factors for determining continence. When a continent woman coughs...

...about 3.0 cm. Such elongated folds may be held with a plurality of separate **fasteners** , the number and spacing of the **fasteners** often being determined by their ability to contiguously **approximate** the fold so that the sides, over time, are **connected** by scar tissue. The folds may extend away from the major surfaces of the endopelvic...

...into contact with itself (see FICTs. 8D and 8E).

Once fold 22 is fori-ned, **fastener** 24 (here in the forrn of a **staple**) is
deployed from probe 30 to **affix** the fold in **position** until adhesions have fon-ned. One or more **staples** 24 may be deployed using conventional tissue **stapler** structures, the tissue **staplers** often being disposed between pairs of rollers 36 so as to intermittently support an elongate fold 22 along the length of the fold. Alternatively, the fold may be **affixed** in **position** using a separate probe structure. Similarly, the inner surfaces of the fold may be abraded ...otherwise traumatized so as to promote the formation of adhesions using a separate structure. Suitable **stapler** structures and **stapling** methods are described in U.S.

ID
Patent Nos. 5,735,445; 5,470,009...

...52 define a plurality of inwardly oriented channels 56. Channels 56 provide access to the **approximated** tissues when the arrns are adjacent to each other.

Staplers 58 ride within channels 56, and can be advanced distally to deploy **fasteners** 24 (here again illustrated as **staples**) while the roughened fold retainers 54 extend within the folded tissue surfaces. Roughened retainers 54...

...probe 50 is withdrawn proximally, thereby promoting the formation of adhesions.

further include a reabsorbable **suture** material 86 such as those described in U.S. Patent Nos. 5,576,418; 5...
...the full disclosures of which are incorporated herein by reference.

A still further alternative of **fastening** structure is illustrated in Fig. 12. A helical coil 88 may be advanced into fold...

...of adhesions, and/or may be reabsorbable. Alternatively, coil 88 (or any of the other **fasteners** described hereinabove) may comprise materials such as titanium or stainless steel, which are biocompatible but...

...as left and right fascial portions separated at the patient's midline by urethra UR.

Endopelvic fascia EF is supported by **ligaments** ATFP above a **vaginal** mucosa VM. It may be desirable to selectively decrease a length of endopelvic fascia EF...

...access target regions 140 with minimal trauma to the patient, a weighted speculum 142 is **inserted** into the **vagina** to expose the **vaginal** mucosa VM.

Optionally, elongated laterally offset incisions 143 might be made in the **vaginal** mucosa so that the **vaginal** mucosa could be manually dissected ftom the endopelvic fascia EF.

However, to minimize trauma and...

...of Figs. 8 and 9 may deploy cyanoacrylate adhesive within the fold so as to **affix** the **approximated** tissue surfaces together, rather than (or in addition to) deploying **fasteners** or radiofrequency current. Alternatively, **affixing** needles and **sutures** may be incorporated into the probes or deployed manually to **affix** the folds, or simple ligation-like loops of **suture** may be prepositioned around him 94 of vacuum probe 90 to **affix** the bunched up fascia in **place** and reduce the effective length of the endopelvic fascia. Hence, the scope of the present...

Claim
... of the tissue along a fold depth, the
fold depth being within a predetermined range;
affixing the adjacent first and second tissue portions together with the
probe to decrease a dimension...

...portions
comprise or support endopelvic fascia.

3 The incontinence therapy of claim 1, wherein the **affixing** step comprises advancing a **fastener** from the probe at least partially through each of the first tissue portion and the second tissue portion.

4 The incontinence therapy of claim 3, wherein the **fastener** comprises at least one member of the group consisting of **suture** , a **staple** , a barbed **tack** , and a helical coil. 5 . The incontinence therapy of claim 3, wherein the **fastener** is at least partially bioabsorbable, and further comprising promoting adhesion formation between
ID
the first...

...comprises abrading adjacent tissue surface regions.

7 The incontinence therapy of claim 1, wherein the **affixing** step comprises applying an electrical current through the first and second tissue portions.

8 The...

...the jaws into the channel.
I 11. The incontinence therapy of claim 1, wherein the **affixed** first and
second portions form the fold with a fold depth from about 2 mm...

...endopelvic fascia extending laterally on first and second sides of a urethra, the therapy
comprising:
affixing a first surface region of the endopelvic fascia on the first side of the urethra...

...region of the endopelvic fascia on the first side of the urethra with a first **fastener** so as to decrease an effective length of the first side wherein the shortened effective...

...urethra such that incontinence is inhibited.

13 The incontinence therapy of claim 12, further comprising:
affixing a third surface region of the endopelvic fascia on the second side of the urethra with a second **fastener** so as to decrease an effective length of the second side.

14 The incontinence therapy of claim 13, wherein the **affixing** steps comprise promoting forination of adhesions between the first and second surface regions and between the third and fourth surface regions, and further comprising reabsorbing the **fasteners** .

15 An endopelvic fascia plication tool comprising:
a probe having a proximal end and a...

...end; and

16 A plication tool as claimed in claim 15, further comprising means for **affixing** the inward drawn region in the smaller configuration, the **affixing** means disposed near the grasping means.

17 A plication tool as claimed in claim 16, wherein the **affixing** means comprises a member selected from the group consisting of an electrode, adhesive, **suture** , a **staple** , a helical coil, and a barbed **tack** .

18 A plication tool as claimed in claim 15, wherein the **affixing** means is reabsorbable, and further comprising means for promoting adhesion formation, the adhesion promoting means...

...smaller areal configuration.

20 A plication system as claimed in claim 19, further comprising a **fastener** disposable near the grasper and a second mechanism coupled to the **fastener** such that actuation of the second mechanism advances the **fastener** at least partially through the tissue so as to **affix** the tissue in the smaller configuration.

21 A plication system as claimed in claim 19...

...an
electrode disposed near the grasper and an electrical conductor extending proximally from the advanced **fastener** to a current source for application of sufficient current to **affix** the tissue in the smaller configuration.

22 A plication system as claimed in claim 19...a first effective length of an endopelvic fascia between a
urethra and a first arcus **tendinous** fascia **pelvis** ;

31 An incontinence therapy kit comprising:
a probe having a tissue folding mechanism;
instructions for...

...method
including the steps of forming a laterally offset fold in the endopelvic fascia and **affixing** the fold so as to inhibit incontinence.

39/3,K/32 (Item 32 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
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00359722 **Image available**
SURGICAL KIT AND METHOD FOR PERFORMING LAPAROSCOPIC URETHROPEXY, AND APPARATUS EMPLOYED IN SAME
TROUSSE CHIRURGICALE ET PROCEDE D'URETHROPEXIE PAR LAPAROSCOPIE ET APPAREIL ASSOCIE
Patent Applicant/Assignee:
INCONT INC,
Inventor(s):
THOMPSON Ronald J,
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Claims

Claim
... e) a handle attached to said second end of said guide portion.

65 The anchor- **insertion** tool of claim 64, further comprising at least one shouldered depression extending about the circumference...

...said tool, said depression sized so as to accommodate an elastic band for holding said **suture** between said elastic band and said tool.

66 The **anchor - insertion** tool of claim 65, further comprising a pair of
tapered grooves extending along opposite sides...

...said tip and at least partially along the length of said intermediate portion.
67 The **anchor - insertion** tool of claim 65, further comprising a second shouldered depression extending about the circumference of...

...tool, said second depression sized so as to accommodate an elastic band for holding said **suture** between said elastic band and said tool, wherein both of said shouldered depressions extend about said cylindrical **guide** portion.

68 The **anchor - insertion** tool of claim 65, wherein said **anchorreceiving** tip has a pair of **guide** tabs extending from either side of the end of said tip opposite said intermediate portion, said **guide** tabs matingly receivable in corresponding grooves on an **anchor** to thereby hold an **anchor** on said anchorreceiving tip.

69 The **anchor - insertion** tool of claim 65, wherein the total length of said **anchor - insertion** tool is such that said tool may be readily employed through - 74 a laparoscope in order to **insert** an **anchor** in the pubic bone of a patient during a laparoscopic urethropexy procedure.

70 The **anchor - insertion** tool of claim 69, wherein said intermediate portion has a length between about 2 and about 6 centimeters, and wherein said **guide** portion has a length between about 50 and about 55 centimeters.

71 A loaded anchor- **insertion** tool comprising, in combination, the **anchor** -receiving tool of claim 65, an **anchor** having a **suture** extending therefrom, and at least one elastic band, wherein said anchor is **positioned** on and held by said **anchor** -receiving tip, wherein said elastic band is **positioned** in said shouldered depression, and wherein said **suture** extends along at least of the length of said **anchor - insertion** tool and is held between said elastic band and said shouldered depression.

72 The loaded **anchor - insertion** tool of claim 71, further comprising:
(a) a second shouldered depression extending about the circumference of said **anchor - insertion** tool, said second depression sized
so as to accommodate an elastic band for holding said **suture** between said elastic band and said tool, wherein both of said shouldered depressions extend about said cylindrical **guide** portion; and
(b) a second elastic band **positioned** within said second shouldered depression, wherein said **suture** is further held between said second elastic band and said second shouldered depression.
73 The loaded **anchor - insertion** tool of claim 71, wherein:
(a) said **anchor** comprises:
-a cylindrical body having a conical end;
-at least two flexible barbs curving outwardly...

...a portion of said cylindrical end and
a portion of said body; and
(b) said **anchor - insertion** tool has:
-a pair of **guide** tabs extending from either side of the end of said tip opposite said intermediate portion...

...said
tip and at least partially along the length of said intermediate portion;
wherein said **guide** tabs are matingly received in said grooves on said **anchor** to thereby hold the **anchor** on said **anchor** -receiving tip, wherein said **suture**
extends through said aperture on said anchor, and wherein said **suture** is
positioned within said pair of tapered grooves on said anchor-**insertion** tool.
74 A **suture** retrieval tool for use in a laparoscopic urethropexy procedure, said retrieval tool comprising:
(a) a...

...b) a handle, said handle having a longitudinal axis;
whereby said retrieving end may be **inserted** into a **vagina** , through the **vaginal** mucosa and periurethral tissue adjacent a urethra, and into the space of Retzius, such that said retrieving end may be employed to

snare a **suture** **positioned** in the space of Retzius for retrieving said **suture** into the **vagina** .

75 The **suture** retrieval tool of claim 74, further comprising a midshaft **positioned** between said retrieving end said handle.

76 The **suture** retrieval tool of claim 75, wherein said midshaft and said
shaft of said retrieving end are **secured** to one another in an angular relationship, - 76 and wherein said handle and said midshaft are **secured** to one another in an angular relationship, such that the angle between said midshaft and said shaft of said retrieving end is **approximately** equivalent to the angle between said handle ...of the retrieving end substantially parallel to the longitudinal axis of said handle.
77 The **suture** retrieval tool of claim 76, wherein the angle between said handle and said midshaft is between about 50 and about 80 degrees, such that when said retrieving end is **inserted** into the space of Retzius of a patient in order to snare a **suture** therein, said handle will be **positioned** outside of the patient's **vagina** in order to facilitate manipulation of said retrieving end in the space of Retzius.

78 The **suture** retrieval tool of claim 76, wherein the diameter of said midshaft is greater than the...

...as a stop preventing the midshaft from penetrating soft tissue when said retrieving end is **inserted** through the soft tissue of a patient.

79 The **suture** retrieval tool of claim 74, wherein said retrieving end further comprises a return leg, said...

...tip, and said rod-like shaft define a U-shaped region capable of snaring a **suture** therein when said U-shaped region is pulled over a **suture** .

80 The **suture** retrieval tool of claim 79, wherein said retrieving end has a length sufficient to provide access to the space of Retzius in a patient when said retrieving end is fully **inserted** into the **vagina** and through the **vaginal** mucosa and periurethral fascia adjacent the urethra, but not so long as to permit said sharp tip to penetrate beyond the space of Retzius. - 77

81 The **suture** retrieval tool of claim 80, wherein said retrieving end is
stainless steel, and wherein said midshaft and said handle are plastic.

82 A **template** for guiding at least one **suture** through the periurethral
fascia and **vaginal** mucosa adjacent a patient's urethra during a urethropexy procedure, wherein said at least one suture is attached to an anchor **secured** within the body of said patient above the patient's urethra, said **template** having at least one **guide** aperture, wherein said **template** is alignable within a **vagina** such that said **guide** aperture is **positioned** adjacent the **vaginal** mucosa adjacent the urethra, thereby permitting said **suture** to be retrieved from within the body cavity into the **vagina** through said at least one aperture during a urethropexy procedure.

83 The **template** of claim 82, further comprising:
(a) first and second wing members extending laterally from opposite side of said **template** ;

wherein at least one of said apertures is **positioned** within each of said wing members, and wherein said **template** is alignable within a **vagina** such that said wing members are **positioned** adjacent either side of the urethra, with said at least one **guide** aperture in each wing member **positioned** such that a **suture** may be retrieved from within the patient's body into the **vagina** through said at least one aperture during a urethropexy procedure.

84 The **template** of claim 83, wherein said **template** further comprises a trough of arcuate cross-section, said trough having a length and first ...

...wing members extending away from opposite sides of said trough along said length.

85 The **template** of claim 84, wherein said second end of said trough comprises an end wall, and wherein said trough is sized such that a patient's urethra may be **positioned** within said trough with said end wall adjacent to the end of the patient's urethra, to thereby **locate** said apertures on either side of the patient's urethra.

86 The **template** of claim 84, further comprising an alignment member extending away from the end wall of...

...of said alignment member parallel and aligned with the centerline of said trough.

87 The **template** of claim 86, wherein said alignment member is arcuate in cross-section and extends away...

...trough, and wherein said alignment member is sized such that the alignment member may be **positioned** about the circumference of a catheter **inserted** in a patient's urethra to thereby **position** said **template** in the desired **location** .

88 The **template** of claim 86, wherein said alignment member is arcuate in cross-section and extends from...

...said trough above the interior surface of said trough, and wherein said alignment member is **insertable** in a patient's urethra in order to align said **template** .

89 The **template** of claim 83, wherein each of said wing members has first and second **guide** apertures, said first and second **guide** apertures in each wing member spaced from one another by a predetermined amount.

90 A **template** for guiding **suture** tails through the periurethral tissue
on either side of a patient's urethra during a urethropexy procedure, wherein at least one of said sutures is attached to an anchor **secured** within the body of said
patient above the patient's urethra, said **template** comprising:
(a) a trough of arcuate cross-section, said trough having a length and first...

...away from opposite sides of said trough; and
(b) at least one suture guide aperture **positioned** in each of said wing members at a predetermined **location** ;
said **template** configured so as to be alignable within the **vagina** of a patient such that the patient's urethra will be **positioned** within said

trough, and such that one of said wing members will be **positioned** adjacent either side of said urethra with said **guide** aperture in each wing member **positioned** a predetermined distance from the urethra and the UVJ.

91 The **template** of claim 90, further comprising a vertical end wall **secured** to the first end of said trough, and an alignment member **attached** to and extending away from said end wall, said alignment member having an arcuate cross...

...of said alignment member is parallel to the longitudinal axis of said trough.

92 The **template** of claim 91, wherein said alignment member is of a resilient material such that said alignment member may be **secured** about a catheter, thereby providing a means for alignably positioning said **template** within a patient's **vagina** when a catheter has been **inserted** into the patient's urethra.

93 The **template** of claim 92, wherein each of said wing members has first and second **guide** apertures, each of said first apertures **positioned** adjacent said trough, and each of said second apertures **positioned** at least about one centimeter from the first aperture in the same wing member.

94 The **template** of claim 93, wherein the distance between said end wall and each of said first **guide** apertures is between about 2.5 and about 3.2 centimeters.

95 The **template** of claim 93, wherein said first and second **guide** apertures in each wing member are aligned along an imaginary line extending perpendicularly away from...

...to the desired angle by securing a suture between an anchor which has been laparoscopically **secured** to the pubic bone
and the periurethral tissue adjacent the urethra, said kit comprising:
(a) at least one bone anchor;
(b) at least one **anchor - insertion** tool of claim 38;
(c) the drill tamper tool of claim 58; and
(d) a **suture** retrieval tool.

97 The surgical kit of claim 96, further comprising the **template** of claim 82.

98 A surgical kit for use in a laparoscopic urethropexy procedure wherein...

...to the desired angle by securing a suture between an anchor which has been laparoscopically **secured** to the pubic bone
and the periurethral tissue adjacent the urethra, said kit comprising:
(a) at least one loaded **anchor - insertion** tool of claim 47;
(b) the drill tamper tool of claim 58; and
(c) a **suture** retrieval tool.

99 The surgical kit of claim 98, further comprising the **template** of claim 82. 100. The surgical kit of claim 97, having a pair of the loaded **anchorinsertion** tools of claim 47.

101. A surgical **method** for performing laparoscopic urethropexy on a patient, comprising the steps of:
- 81 (a) dissecting at...

...bore in the pubic bone adjacent the
space of Retzius;
(c) providing at least one **anchor** , said **anchor** having at least one
suture extending therefrom;
(d) laparoscopically **inserting** an **anchor** in said bore such that said
anchor is thereby **secured** in said bore; and
(e) **securing** said **suture** to the periurethral tissue adjacent to the
urethra to thereby elevate the urethra to the desired angle.
102. Thesurgicalmethodofclaim101,whereinsaidsutureissecured
to the periurethral tissue by pulling said **suture** through the
periurethral fascia and **vaginal** mucosa into the vagina, and tying said
suture within the **vagina** .
103. The **surgical** **method** of claim 102, wherein:
-a pair of bores are created in the pubic bone, with...

...bores on
either side of the pubic symphysis above the periurethral fascia;
-a pair of **anchors** are provided, each of said **anchors** having a
suture
extending therefrom;
-one of said pair of **anchors** is **inserted** into each of said bores; and
-one of said **sutures** is pulled through the periurethral fascia and
vaginal
mucosa adjacent either side of the urethra into the **vagina** ; and
-each of said **sutures** is tied within the **vagina** , such that one of
said
0 **sutures** will provide an upward force on the periurethral tissue
positioned on either side of the urethra, thereby elevating the urethra
to the desired angle.
104. The surgical **method** of claim 101, wherein said bore creation step
comprises:
(a) **inserting** a laparoscope into the patient to provide access to and
vision of the space of Retzius;
- 82
(b) creating a crater in the pubic bone at the desired **location** for
said
bore by means of a laser **inserted** through the laparoscopic channel,
said
crater being sufficiently deep to provide access to the cancellous...

...having a boring
tip, said boring tip having a distal end; and
1 0 (d) **inserting** said boring tip of said drill tamper tool through the
laparoscopic channel;
(e) urging the...

...crater to create said bore in the cancellous bone beneath said crater.
105. The surgical **method** of claim 104, wherein the distal end of said
boring tip is sufficiently sharp to...

...to inadvertently pierce soft tissue or organs during the bore creation
step.
106. The surgical **method** of claim 104, wherein said dissecting step
comprises:
(a) **inserting** a balloon dissection apparatus infraumbilically into the
space of Retzius;
(b) inflating the balloon of...

...extent of dissection is observed by means of said
1 0 laparoscope.

107. The surgical **method** of claim 1 01 , wherein said anchor insertion step comprises:
(a) providing an **anchor - insertion** tool, said **anchor - insertion** tool
comprising a rigid, elongate member having:
-an **anchor** -receiving tip at one end, and
-a handle at the opposite end;
- 83
(b) loading said **anchor** on said **anchor** -receiving tip, with said **suture**
extending along the length of said **anchor - insertion** tool towards said handle;
1 0 (c) inserting said tip of said **anchor - insertion** tool through the laparoscopic channel;
(d) **inserting** said **anchor** into said bore by urging said **anchor** -receiving
tip, with said **anchor** loaded thereon, toward said bore;
(e) pulling said **anchor - insertion** tool away from said bore, thereby
1 5 releasing said **anchor** from said **anchor** -receiving tip.
108. The surgical **method** of claim 107, wherein:
-said **anchor - insertion** tool further comprises an elastic band extending
about its circumference;
-said **anchor** loading step further comprises positioning said **suture** between said elastic band and said anchor-insertion tool so that said suture is **securely** held against said **insertion** tool by said elastic band; and -during said step of pulling said **insertion** tool away from said bore, said **suture** is permitted to slide between said elastic band and said **insertion**
tool so that said **suture** is tensioned between said **anchor** and said
1 0 **insertion** tool to thereby pull outwardly on said **anchor** in order to seat the **anchor** within said bore.
109. The surgical **method** of claim 107, wherein:
-said step of pulling said **insertion** tool away from said bore comprises removing said **insertion** tool at least partially from the laparoscopic channel;
-after said pulling step said **suture** is tensioned between said anchor and
said insertion tool; and
-said suture **securing** step comprises:
(a) providing a **suture** retriever, said retriever having a pointed tip;
- 84
1 0 (b) **inserting** said tip of said **suture** retriever into the **vagina** ,
through the **vaginal** mucosa and periurethral fascia adjacent the urethra, into the space of Retzius;
(c) snaring said tensioned **suture** with said **suture** retriever;
(d) pulling said snared **suture** into the **vagina** by means of said
1 5 **suture** retriever; and
(e) tying said **suture** within the vagina.
110. The surgical **method** of claim 107, wherein said at least one **suture**
has first and second tails extending from said **anchor** , wherein both of said tails are tensioned between said **insertion** tool and said **anchor** after said pulling step,
and wherein said suture **securing** step comprises:
(a) providing a **suture** retriever, said retriever having a pointed tip;
(b) **inserting** said tip of said **suture** retriever into the **vagina** ,

through the
vaginal mucosa and periurethral fascia adjacent the urethra, into the space of Retzius;
(c) snaring said first tail of said at least one **suture** with said **suture**
1 0 retriever;
(d) pulling said snared first tail into the **vagina** by means of said **suture**
retriever;
(e) repeating steps (b)-(d) for the second tail of said at least one **suture** , wherein said snared second tail is pulled into the **vagina** a
1 5 predetermined distance from the first tail; and
(f) tying said first and second **suture** tails to each other within the **vagina** in order to elevate the urethra to the desired angle.
111. Amethodforvaginallyretrievingasutureextendingfromananchor,said **anchor** **secured** within a bore in the pubic bone of a patient, said bore **positioned** adjacent the space of Retzius above the periurethral fascia, comprising the steps
of:
(a) providing a **suture** retrieving tool, said retrieving tool comprising:
- 85 -a metal retrieving end, said ...tip, and said rod-like shaft define a U-shaped region capable of snaring a **suture** therein when said U-shaped region is pulled over a **suture** .;
-a handle, said handle having a longitudinal axis; and
-a midshaft **positioned** between said retrieving end and said
5 handle;
(b) **inserting** said retrieving end into the patient's **vagina** ;
(c) forcing said sharp tip through the **vaginal** mucosa and periurethral fascia adjacent the urethra at a predetermined **location** ;
(d) pushing said retrieving end upwardly into the space of Retzius by means of said handle so that said U-shaped region is **positioned** directly
above said **suture** ;
(e) pulling said retrieving end downwardly by means of said handle so as to snare said **suture** within said U-shaped region;
(f) continuing to pull said retrieving end downwardly by means of said handle until said retrieving end is completely pulled back into the **vagina** , such that said **suture** will also be pulled into the **vagina** .
112. Thesurgicalmethodofclaim111,whereinsaidU-shapedregion is sized so that said **suture** freely slides therewithin as said retrieving end is pulled back into the **vagina** , thereby ensuring that said **suture** is not damaged during the retrieval **process** .
113. The surgical **method** of claim 112, wherein said handle remains substantially outside of the **vagina** during the retrieval process, thereby facilitating the manipulation of the retrieving end during the retrieval process. - 86
114. Thesurgicalmethodofclaim113,whereinsaidmidshaftandsaid rod-like shaft are **secured** to one another in an angular relationship, and wherein
said handle and said midshaft are **secured** to one another in an angular relationship, such that the angle between said midshaft and said rod-like shaft is **approximately** equivalent to the angle between said handle and said midshaft, thereby positioning the longitudinal axis...

...substantially parallel to the longitudinal axis of said handle, thereby permitting said handle to be **positioned** outside of the **vagina** during the retrieval process.
1 0

37/3,K/84 (Item 84 from file: 349)
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Good!!

00449650 **Image available**
SURGICAL TEMPLATE AND SURGICAL METHOD EMPLOYING SAME
GABARIT CHIRURGICAL ET PROCEDE CHIRURGICAL EMPLOYANT CE GABARIT
Patent Applicant/Assignee:
MEDWORKS CORPORATION,
Inventor(s):
THOMPSON Ronald J,
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Detailed Description
... of Fig's 27-28 if suture tying were accomplished prior to removal of the **template** . This process may then be repeated for the three
additional **sutures** in the same manner. The result is that the UVJ is returned to its desired elevation, and two parallel segments of **suture** material will extend perpendicular to the urethra on each side thereof.

The **template** of Fig's 29-36 can also be used in the manner depicted in Fig. 28, with **suture** tying accomplished in the **vagina** . Thereafter the knot may be rotated into the space of Retzius, and the **template** removed. The **template** of Fig's 29-36 may be advantageous even when **suture** tying is accomplished in the **vagina** , since the **suture** tails of each **suture** may be tied with the **template** in **place** . Thus, the surgeon need not wait until the **suture** tails of all four tails have been brought into the **vagina** before tying.

48
When the **template** of Fig. 29 is employed, it will be apparent that when the **suture** is tied, the **suture** will pull against the tissue beneath slot 689. This tissue, however, is very pliant, and it may be difficult to tie the **sutures** within the abdominal cavity so that the urethra is elevated evenly on both sides. In addition, the **suture** lying within slot 689 will be difficult to observe during tying, since the **suture** is pulled up behind the pubic bone (hence the term "retropubic").

This lack of vision will make it even more difficult to observe the degree of elevation during **suture** tying. In order to overcome these problems, a pair of removable support struts 691 are 0
As best shown in Fig's 31-32, support struts 691 are removably **attached** to the underside of each wing member, and act to block the communication

between adjacent apertures provided by the slit therebetween. For example, when the support strut is not in **place** , slit 689 provides communication between 1 5 first aperture 685 and second aperture 686, as shown in Fig. 29. When support strut 691 is **attached** to the underside of the wing member, support strut 691 will block communication between first...

...as shown in top plan view 32.
Figure 49 is a perspective view of the **template** of Fig. 31 in use during a Burch procedure, wherein the patient's anatomy, other than Cooper's ligament 1 1, has been eliminated for purposes of clarity. A **suture** 61 0 has been passed through Cooper's ligament 1 1 , and has been passed into the **vagina** through both third aperture 687 and fourth aperture 688 and looped around strut 691 as shown. First and second ends 612 and 613 of **suture** 61 0 may then be tied to one another in the typical fashion. Since **suture** 61 0 will bear against strut 691 during this **process** , the surgeon or the **surgeon** 's assistant may monitor the elevation of the UVJ merely by observing the degree that second wing member 682 is deflected upwardly within the **vagina** . If strut 691 were not present, the elevation would be difficult to observe, because the...

...would obscure the amount of elevation being provided. In addition, upward
49
movement of the **template** is much easier to observe than the upward movement of a small area of the vaginal **wall** .

After one side of the urethra has been elevated using a **fixation device**
extending between the periurethral tissue and Cooper's ligament, the process may be repeated on...

...s assistant
may once again observe the elevation of first wing member 681 within the **vagina** , while also ensuring that the wing members are elevated to the same extent. In this...

...the elevation on each side of the urethra is substantially equivalent. Once all of the **sutures** have been tied and proper
elevation verified, struts 691 may be removed from the **template** , thereby
releasing the **suture** from the **template** though the slots providing communication between adjacent apertures. While the **template** of Fig. 49 is shown in use 1 5 during a Burch procedure, the strutted **template** may be used in any of the procedures described herein.

Strut 691 is shown in...slightly in order to more accurately correspond to any curvature of the
underside of the **template** wing members against which strut 691 will be **attached** . The interior of strut 691 may be hollowed as shown in order to
account for...
...of the wing members. Curved upper
surface 692 provides a smooth surface against which the **sutures** or other
fixation devices will bear. This smooth, curved surface will prevent any damage to the **suture** during the procedures of the present invention. The length of struts 691 should be chosen...

...members are blocked, and to ensure that the struts can be readily

removed from the **template** by
50
grasping tab 694 which extends away from the front end 695 of the...

...a variety of shapes, and the flat, curved tab shown in Fig. 33 is merely **exemplary** .

Struts 694 may be **attached** to the underside of the wing members in any manner desired, as long as the...

...such that a firm pull on tab 69-4 will release the strut from the **template** . To facilitate such removal, tab 694 may be gripped with a mechanical grasping device, and then firmly pulled away from the **template** . Alternatively, a combination of alignable **locking** pins and apertures may be provided on lower surface 693 of the strut and the...

...5
It is preferred, however, that strut 691 be slid on and off of the **template** in order to provide for strut removal which is not encumbered by the **suture**
extending around the curved upper surface 692 of the strut. This may be accomplished, for...

...696 are provided along lower surface 693 of strut 691, and a pair of corresponding **locking** ridges or tongues 696. Tongues 696 are preferably their narrowest adjacent the underside of the...

...have a shape corresponding to that of tongues 697 such that strut 691 can be **attached** to the wing member by sliding the strut onto tongues 697.

The male mushroom shape be **attached** or removed from the wing member by sliding the strut off of the front edge...

...of each wing member.
Figures 37 and 38 depict yet another alternative embodiment of the **template** of the present invention. In this embodiment, the **guides** once again
comprise four apertures in each wing member, and a slit provides communication between...

...diagonally between apertures, and thus form the X-configuration shown. Thus, first aperture 701 is **connected** via slit 705 to fourth aperture 704, and second 1 5 aperture 702 is **connected** via slit 706 to third aperture 703. The **template** of Fig's 37 and 38 permits the surgeon to pass the **sutures** through the periurethral tissue in a figure-8 (or crossing) pattern.

Figure 54 depicts one manner of using the **template** of Fig's 37 and 38 duringaBurchprocedurewhereinasinglesuture710isemployed. Needle711 is used to pass **suture** 71 0 through Cooper's ligament 1 1, and through the periurethral tissue into the **vagina** in the manner shown. Thus, **suture** 710 passes from the space of Retzius into the **vagina** through first aperture 701, passes back up into the space of Retzius through second aperture 702, returns into the **vagina** through third aperture 703, and finally returns back into the space of Retzius through fourth aperture 704. Needle 71 1 is cut from **suture** 41 0, and the two tails of **suture** 41 0 tied to each other. The process is repeated on the other side of the urethra, @and the **template** is then removed by allowing the **suture** to be released through slits 705 and 706. It should also be noted

that the **template** of Fig's 37 and 38 may also be provided with grooves 797 for **attaching**
52
the struts previously described thereto in order to provide blockage of the communication between apertures provided by slits 705 and 706, as desired.

If two **sutures** are employed on each side of the urethra during a Burch or needle suspension **procedure** using the **template** of Fig's 37-38, the first **suture** will extend into the **vagina** through first and fourth apertures 701 and 704.

The second **suture** will extend into the **vagina** through second and fourth
apertures 702 and 703. When the **template** is removed after the **sutures** have been tied, the two **sutures** will cross over each other within the **vagina** .

It should be noted that while the above-described **templates** have been depicted in use during a Burch or urethropexy procedure employing bone anchors **secured** to the pubic bone, the **templates** of the present invention can
be just as easily employed during a needle suspension (including...

...the Burch, with the primary difference being that the sutures or other fixation device are **secured** to the rectus fascia or the top of the pubic bone (in the case of Benderev). The **sutures** are also passed through the periurethral tissue into the **vagina** using a long needle device which is passed along the underside of the pubic bone. The **templates** of the present invention, however, are used in the same manner as described above to **guide** suture **placement** through the periurethral tissue, thereby simplifying these needle suspension **procedures** .

Figures 39 and 40 depict yet another alternative embodiment for the **template** of the present invention. The body of Figs. 39 and 40 is identical to
that...

...and thus the body may comprise
trough 380 and alignment member 388. A pair of **guides** , each comprising a slot 785, are disposed in a predetermined spacial relationship to the body...

...substantially parallel to the longitudinal axis of trough 380.

53
Slots 785 should each be **positioned** between about 1 and about 2 cm from the center line of the trough, and...

...have a width of at least about 0.5 cm. Slots 785 should also
be **positioned** a predetermined distance from distal end 791 of each wing member such that when the **template** of Figs. 39 and 40 is **positioned** within the **vagina** in the manner previously described, each of slots 785 will extend to a
point **approximately** 2 cm from the UVJ. In essence, the slots should be **positioned** on the wing members such that when the **template** is **positioned** in the **vagina** , the slot will extend from a point adjacent to the UVJ to at least the...

...slot 785 on the underside of the wing members is

preferably beveled slightly to facilitate **insertion** of a medical instrument therethrough.
The **template** of Fig's 39 and 40 is specifically designed for use in the urethral sling procedure (also known as a pubovaginal or suburethral sling procedure). In this sling procedure, the **fixation device** comprises a strip of flexible material (such as a polypropylene mesh or even a strip of fascia previously removed from the patient) which is **positioned** beneath the urethra, with the two ends of the sling **connected** relative to a structure within the patient's body. Thus, as shown in Fig. 41, a urethral sling 718 acts as a **fixation device** beneath urethra 2. First and second ends 719 and 720 of urethral sling 718 are **secured** relative to a structure within the patient's body, which in this case is the rectus fascia. **Sutures** 721 and 722 are passed through first and second ends 719 and 720 of the sling as shown, and are thereafter **secured** to the rectus fascia in the manner known to those skilled in the art. As is also well
known, ends 719 and 720 may also be secured by **sutures** or other known means to Cooper's ligament 1 1 , or even periosteum of the...

...bone. As described below, Applicant has developed a new urethral sling which may even be **riveted** to the pubic bone itself.

54
In order for the sling to be **positioned** beneath urethra 2 and therefor act as a support, urethral sling 718 must pass through...

...as shown. Preferably, these incisions extend only through the periurethral fascia 15, and not the **vaginal** mucosa, since urethral sling 718 will not be internalized as easily as **sutures** . In the standard sling procedure currently employed, a **vaginal** skin flap is created by peeling a portion of the **vaginal** mucosa away from the underlying periurethral fascia. The flap can later be reattached once the ...

...incisions in the periurethral fascia have been made, first end 719 of sling 718 is **inserted** through one of the incisions 723, and is then sewn to the rectus fascia. Second end 720 is then **inserted** from the **vagina** through the second incision 723 **positioned** on the opposite side of the urethra. Second end 720 is then brought into the...

...the sling procedure described above
is the proper positioning of the two incisions 723. The **template** of Fig's 39 and
40, however, can readily overcome this problem, and can therefore direct **placement** of urethral sling 718 by guiding a cutting device to create incisions 723 in the proper **location** . After the **vaginal** mucosa has been peeled away, the **template** of Fig's 39 and 40 is **positioned** in the **vagina** in the manner previously described, with the wing members **positioned** against the exposed suburethral
55
fascia (as used herein, the term suburethral fascia is defined as the portion of the periurethral fascia **located** beneath the urethra). Once the **template** is in **place** , a hooked scalpel blade or other cutting device is **positioned** within slot 785 to create incisions 723. These incisions pass through the full thickness of the fascia, substantially parallel to the urethra and **approximately** 1.5 cm. lateral to the urethra. Slots 785 **guide** the movement of the blade, thereby providing precise **location** of the incisions and in turn preventing damage to structures and vasculature of the space of Retzius. The **template** may

then be removed, and the sling procedure completed in the normal fashion.

Figures 50...

...to facilitate grasping of the ends by a mechanical grasping device such as a surgical **clamp** . Sling
718 may be made of any of the variety of polymeric materials, however polytetrafluoroethylene...
...defined by the surface of side portion 725 and 726.

1 0 During the surgical **procedure** of Fig. 41 when Applicant's sling 718 is employed, incisions 723 are created using the **template** in the manner described previously. A mechanical grasper is then **inserted** through one of the incisions 723 into the **vagina** , and grasp ridged end 719 of the sling. The grasper then pulls end 719 into the space of Retzius. A second mechanical grasper is then 1 5 **inserted** into the other incision 723, and grasps second ridged end 720 and likewise pulls it...

...pulled upwardly until the desired elevation is achieved, and ends 719 and 720 are then **sutured** to the rectus fascia. Optionally, the surgeon may **insert** a pressure monitoring device into the urethra in order to determine the optimum degree of elevation provided by the sling. **Suturing** may be accomplished by passing a needle directly through each of ends 719 and 720 as shown in Fig. 41.

The **vaginal** skin flap is then closed, thereby internalizing central portion 724 of sling 718.

Sling 718...
...urethra,
primarily because the PTFE material is non-scarring (i.e., scar tissue will not **attach** to the PTFE). Thus, Applicant's sling also has a pair of stabilizing tabs 729...

...length and width of about 1 cm. After both ends 719 and 720 have been **sutured** to the rectus fascia, stabilizing tabs 729 and 730 are then **sutured** to the underside of the rectus fascia from within the **vagina** prior to closure of the **vaginal** skin flap. In this manner, movement of central portion of 724 of sling 718 in relation to the urethra will be prevented.

Although sling 718 can be **sutured** directly to the rectus fascia or even Cooper's ligament or the periosteum of the pubic bone, Applicant's sling 718 may also be **riveted** to the pubic bone itself. Any of a variety of bone **anchors**
may be employed for this purpose. While the **anchor** may be merely driven through the sling material into the pubic bone, such techniques are...

...surface of side portions 725 and 726 towards the pubic bone when sling 718 is **positioned** within the patient at the desired orientation. The interior of pockets 731 is then accessible the anchor and pocket 731 combination then **secured** within a
corresponding bore in the pubic bone for **attachment** thereto. Preferably, a plurality of pockets 731 are provided in each side portion 725 and 726 as shown, such that either a plurality of anchors may be used to **secure** sling 718, or the
surgeon may select whichever pockets 731 are appropriate to provide the ...

...by means of mechanical graspers.

The surgeon then manipulates the mechanical graspers so as to **position** sling 718 in a manner which will provide the desired elevation. The surgeon next determines the **location** for the bores to be provided in the pubic bone for the **riveting** of sling 718 thereto. This may be accomplished by merely comparing
58
the **locations** of pockets 731 with respect to the pubic bone. The bores are then created in...

...pocket 731 is next aligned"with its corresponding bore in the pubic bone, and an **anchor** is then driven into the interior of pocket 731 and into the bore in the pubic bone. In this manner, sling 718 is **riveted** to the pubic bone. While any of a variety of bone **anchors** may be employed for this purpose, it is presently preferred that the bone **anchors** manufactured by Innovasive Devices, Inc. of Hopkinton, Massachusetts or Lee Medical Technologies, Inc. of Shelton, Connecticut be employed. Both of these **anchors** have an expandable portion which expands outwardly after the 1 0 **anchor** has passed into the bore in the pubic bone. This, pockets 731 are preferably mushroomed...

...and have a flat inner surface 732 against which
the expandable portion of the bone **anchors** will bear. The distance 733 between the surface of the end portion of the sling...

...1 5 cortical bone through which the bore has been created.
Alternatively, although the MitekTm **anchors** may be employed, these are not preferred since the sharp barbs of the **anchor** may damage the sling material. Pockets 731 may even be replaced by a simple aperture and the sling then **riveted** to the pubic bone by means of a bone **rivet** such as that shown in Fig. 2.2 of U.S. Patent No.

5,268...
...is made
is non-scarring. It is preferred, however, that scar tissue form about the **fixation devices** of the present invention in order to enhance the **attachment** provided by these surgical **methods** . Thus, sling 718 may also be provided with a plurality of perforations through its thickness. These perforations will allow ingrowing of scar tissue in order to further **secure** the sling of the present invention in **place** .

In addition, each side of the **template** (or more preferably, each side of ends 719 and 720), may be color coded or...

...will extend towards the pubic bone as desired.

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Many surgeons would rather not pass **sutures** or other **fixation devices**
into the **vagina** . All of the procedures described above can be accomplished, however, by merely passing the **suture** or fixation devise through a portion of the
periurethral tissue without entering the vagina. For example, in a Burch **procedure** , the **surgeon** may merely pass the needle through a bite of periurethral fascia without actually passing the needle into the **vagina** itself.

Several bites of periurethral **fascia** may be taken, and if done properly, the suspension of the periurethral fascia from Cooper...

...only a bite of tissue, rather than entering the 0 vagina. In all of these **procedures** , however, the **surgeon** faces both the problem of proper location of the **sutures** , as well as the problem of ensuring that an adequate bite of tissue is taken. The surgeon will often **insert** a finger into the **vagina** in order to displace the periurethral fascia upwardly, thereby providing visualization from within the space of Retzius. This procedure can be difficult, 5 however, in that precise **location** is not guaranteed, and the surgeon may either inadvertently stab his or her finger with...

...surgeon's or assistant's finger, it does not address the issue of precise suture **placement** . The **templates** of Figs. 42-46, however, solve this problem.

Once again the **te**mplate of Fig. 42 has body portion similar to that previously described, comprising trough 380 and...
...noted, of course, that like all of the dimensions
60
indicated herein, these are merely **exemplary** of one preferred embodiment. As shown in Fig. 43, when the **template** of Fig. 42 is **positioned** within the vagina in the manner described previously, **protrusions** 885 will displace a predetermined region of a the periurethral fascia upwardly into the space...this manner, the protrusions will direct placement of a fixation device through the periurethral tissue **approximately** 1.5 to 2 cm from the centerline of the urethra. It should also be noted that the wing members in the 1 0 **template** of Fig. 42 are swept distally (i.e., distal edge not perpendicular to the longitudinal...

...In Fig. 43, a Burch procedure is shown, wherein a curved needle 811 having a **suture** 810 is passed between a pair of adjacent protrusions 885 as shown. Since protrusions 885 are relatively closely spaced, the tissue between each **protrusion** 885 will also be displaced upwardly, although not to the same extent as the tissue directly contacted by each **protrusion** . Thus, not only do the protrusions provide visualization of the proper location of the **sutures** , the region between adjacent protrusions 885 will also be tented upwardly, thereby allowing the surgeon...
...bite of tissue is taken. The conical nature of the protrusions will also act to **guide** the needle into the space between adjacent protrusions.

After needle 811 and **suture** 810 have been threaded through the region between a first pair of adjacent protrusions as...

...then be passed through Cooper's ligament, the needle removed, and the tails of the **suture** tied to each other. A second **suture** may be similarly passed between another pair of adjacent protrusions 885 and **secured** to Cooper's ligament 1 1.

Alternatively, a single **suture** may take multiple bites between adjacent
61
protrusions. The procedure is then repeated on the...

...within the space of Retzius, the surgeon or their assistant may need to press the **template** upwardly from within the **vagina** . Alternatively, a portion of the **template** body may be expandable such that after the **template** is **positioned** within the patient's **vagina** in the manner previously described, this expandable portion may be expanded so as to urge...
...interior wall of the vagina.

This will in turn force protrusions 885 upwardly against the **vaginal** mucosa adjacent the urethra, thereby providing for increased displacement of the periurethral tissue. This increased...

...1 5
As shown in Fig. 42, 44 and 45, the expandable portion of the **template** body may comprise a balloon 890 which is **secured** to the underside of trough 880. Balloon 890 may be of any of a ...preferred embodiment balloon 890 is cylindrical in order to better match the shape of the **vaginal** cavity when inflated. A port 891 is provided at one end of the balloon, and...

...fluids, including both gases and liquids. A simple syringe or hand-held pump may be **inserted** through port 891 @
and used to inflate balloon 890 with air. Alternatively, port 891 may be **connected** to any of a variety of fluid sources, such as a compressed air source.

It...
...balloon.

As best shown in the cross-sectional view of Fig. 45, inflated balloon 890 **attached** to the underside of trough 880 will fill the **vaginal** cavity beneath the **template** , thereby urging protrusions 885 upwardly against the periurethral
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tissue. The upward displacement of the...

...and 200 cc of fluid, thereby providing sufficient upward displacement of tissue without damaging the **vaginal** cavity or the support structures for the **vaginal** cavity. Balloon 890 may be **attached** to trough 880 by any of a variety of means, including a simple adhesive strip 892. After the
surgical **procedure** has been completed, balloon 890 is deflated, and the **template** removed from the **vaginal** cavity.

1 0 Fig. 46 depicts yet another modification to the **template** of Fig. 42 and may be used with or without the balloon structure previously described. The **template** of Fig. 46 is identical to that of Fig. 42, with or without balloon 890...
...of collar 895 which is concentric to the end of alignment member 888. The entire **template** of Fig. 46 should be singularly molded from a highly translucent polymer through which light...

...polymer is polycarbonate, as it transmits light without a corresponding increase in temperature. Alternatively, the **template** may even be impregnated with optical fibers (i.e., fiber optics) through which light may be transmitted to the desired **location** .

The entire **template** of Fig. 46, other than the tips 897 of protrusions 885
and collar 895, are opaque. Preferably, only tips 897 and collar 895 are translucent, with the remainder of the **template** being completely black. This may be accomplished, for example, by applying a black coating to the **template** .

A light source, preferably of a fiber optic variety, is **attached** to collar 895, and projects light through end 896 thereof. Fiber optics **positioned** within the **template** itself may facilitate transmission of

light to the tips 897 of the protrusions. Because of the opacity of the **template** , this light is transmitted
through the body and wing members of the **template** , and will only escape
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through tips 897 of protrusions 885. When the **template** of Fig. 46 is **positioned** within the **vagina** in the manner shown in Fig. 43, preferably using balloon 890,
the light emitted from...

...periurethral tissue displaced by tips 897, thereby transillurninating this region and guiding placement of the **fixation device** between the protrusions.

As an alternative to transmitting light through the entire **template** body, protrusions 885 may also be hollow with the interior thereof accessible from the underside...

...procedures described herein.

5
Finally, Fig's 47 and 48 depict two relatively simple alternative **template** designs. In the top plan view of Fig. 47, the **guides** are provided in the form of
a pair of notches 901 and 902 on each wing member. This **template** can be used in a manner similar to the **template** of Fig's 13-21, however the **template** of Fig. 47 will permit tying in the space of Retzius. The **suture** retriever may be passed through notches 901 and 902 in the same manner as if the notches were apertures, or alternatively a **suture** may be passed from the space of Retzius, through the periurethral tissue and into the **vagina** through notch 901, and then back into the space of Retzius through notch 902. The **suture** tails may then be tied in the space of Retzius, and the **template** removed by merely sliding the portion of the **suture** within the **vagina** off of the region 903 of the underside of the **template** between notches 901 and 902.

The **guides** on the **template** of Fig. 48 comprise a plurality of graduations
910 on the underside of each wing...

...shown, and may be numbered or otherwise designated to
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facilitate proper placement of the **fixation device** . The graduations are provided on the underside of the wing member so that they will be visible from within the
vagina . In the embodiment of Fig. 48, the wing members have also been shortened such that...
...In this manner, the graduations may, for example, be used to direct insertion of the **suture** retriever of the present invention at a predetermined **location** immediately adjacent distal end 991. The **tem**plate of Fig. 48 will also thereby permit **suture** tying in the space of Retzius when desired, since the **sutures** will at no time pass 1
0 through any portion of the **template** .

The foregoing description of preferred embodiments is by no means exhaustive of the variations of...

...modifications and
variations are well within the scope of the present invention. For example, the
templates of the present invention may be used in any of a variety of

gynecological procedures. In addition, the dimensions for the various components of the **template** are merely **exemplary** , and modifications to these dimensions may be made in order to accommodate the preferences of ...

Claim
1 A **template** for guiding the placement of a **fixation device** during a
surgical **procedure** , said **template** comprising:
(a) a body portion; and
(b) at least one **guide** disposed in a predetermined spacial relationship to said body portion;
wherein said **template** is configured such that at least a portion of the **template** may be aligned within the **vagina** of a patient such that said **guide** may be employed to direct the placement of a **fixation device** or other medical instrument through at least a portion of the tissue adjacent the **vagina** .

2 The **template** of Claim 1, further comprising at least one wing member, and wherein said at least one **guide** is provided on said wing member.

3 The **template** of Claim 1 , wherein said **template** further comprises an elongate member which may be **inserted** into a patient's urethra.

4 The **template** of Claim 3, wherein said elongate member comprises a catheter **secured** to said body.

5 The **template** of Claim 2, wherein said body comprises a trough of arcuate cross-section, and wherein said wing member extends away from one side of said trough.

6 The **template** of Claim 1 , wherein said at least one **guide** is chosen from the group consisting of: a slot, a notch, a protrusion and a visible indicia.

7 The **template** of Claim 6, wherein said **guide** comprises a light source, and wherein said **template** is configured to be alignable within the **vagina** of a patient such that a beam of light may be projected from said light...

...of the periurethral tissue, thereby
transilluminating said predetermined region of the periurethral tissue.

8 The **template** of Claim 7, wherein said at least one **guide** further comprises a protrusion extending away from the topside of said wing member, and wherein said light source is provided on said protrusion.
9 The **template** of Claim 7, wherein said light source comprises a translucent region through which a beam of light may be projected.

10 The **template** of Claim 6, wherein said at least one **guide** comprises a protrusion, wherein said **template** is configured to be alignable within the 1 0 **vagina** of a patient such that said protrusion will displace a predetermined region of the periurethral tissue of the patient.

11 The **template** of Claim 1 0, wherein a plurality of said protrusions are provided, said protrusions **positioned** adjacent to one another such that the 1 5 region between said protrusions can be...

...of the patient by observation of the regions of the periurethral tissue displaced by adjacent **protrusions** .

12 The **template** of Claim 6, wherein said at least one **guide** member comprises a slot sized so as to permit a cutting tool to be **inserted** therethrough in order to create an incision in the periurethral tissue of a patient during a continence procedure.

13 The **template** of Claim 12, further comprising at least one wing member, and wherein said slot is **positioned** on said wing member such that said **template** may be aligned within the **vagina** of a patient with said slot extending substantially parallel to the patient's urethra.
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. The **template** of Claim 13, wherein said **template** has a pair of said wing members, wherein a slot is provided on each of...

...members, and wherein said wing members and said slots are configured such that when said **template** is aligned within the **vagina** of a patient, a cutting tool may be **inserted** through said slots in order to create an incision in the periurethral tissue adjacent either side of the patient's urethra.

15 The **template** of Claim 6, wherein said **template** has a pair of **guide**
apertures through which a **fixation device** may be passed during a urethropexy procedure, and wherein said apertures are **connected** to one another by a slit.

16 The **template** of Claim 15, further comprising a pair of wing members, and wherein each wing member has at least two of said apertures **connected** to one another by a slit.
17 The **template** of Claim 1 , further comprising a support strut, said strut configured such that a fixation **device** may be **secured** about said strut during an urethropexy procedure.

18 The **template** of Claim 17, wherein said support strut is removable, and wherein a fixation **device secured** about said strut during an urethropexy
procedure can be released therefrom when said strut is removed from said **template** .

19 The **template** of Claim 17, wherein said **template** further comprises at least one wing member, and wherein said support strut is **positioned** on said wing member.

20 The **template** of Claim 19, wherein a pair of said **guides** are provided on said wing member, and wherein said **guides** comprise apertures.
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. The **template** of Claim 20, wherein said apertures are **connected** to one another by a slit, and wherein said support strut is **positioned** atop at least a portion of said slit, thereby blocking communication between said apertures.
22 The **template** of Claim 21, wherein said support strut is removable.

23 The **template** of Claim 21, wherein said wing member has a topside and an underside, wherein said **template** is configured to be alignable within the **vagina** of a patient such that the topside of said wing member will be **positioned** against the **vaginal** mucosa adjacent the

urethra, and wherein said support strut extends away from the underside of said wing member.

24 The **template** of Claim 1, wherein at least a portion of said **template**
is expandable.

25 The **template** of Claim 24, wherein said **template** is configured such that at least the expandable portion of said **template** may be **inserted** into a patient's **vagina** in an at least partially unexpanded condition, and thereafter expanded so as to urge said expandable portion against the interior wall of the **vagina** and to urge said at least one **guide** against a predetermined region of the periurethral tissue.

26 The **template** of Claim 25, wherein said expandable portion is inflatable.

27 The **template** of Claim 26, wherein expandable portion comprises a balloon which may be inflated with a fluid.

28 The **template** of Claim 27, wherein said **guide** comprises a protrusion, and wherein said protrusion is configured such that said protrusion will displace...

...region of the periurethral tissue of the patient when
69
the expandable portion of said **template** is expanded within the **vagina** of a patient, and wherein the displacement will be visible within the abdominal cavity of the patient.

29 The **template** of Claim 28, wherein said **template** has a plurality of said protrusions.

30 A **template** for guiding the placement of a **fixation device** during a
surgical procedure to **correct** incontinence, said **template** comprising:
(a) a body portion;
(b) at least one **guide** disposed in a predetermined spacial relationship to said body;
wherein said **template** is configured such that at least a portion of the **template** may be aligned within the **vagina** of a patient such that said **guide** may be employed to direct the placement of a **fixation device** through the periurethral tissue at a predetermined **location** .

31 The **template** of claim 30, wherein said **template** is configured such that alignment of the **template** at least partially within a **vagina** of a patient is directed by the patient's urethra.

32 The **template** of claim 31, wherein said **guide** is chosen from the group consisting of: a slot, a notch, a protrusion, a visible indicia, and a pair of apertures **connected** to one another by a slit.

33 A urethral sling for use in a surgical procedure to **correct** incontinence, said sling comprising a strip of flexible material having a central portion, and a...

...portions extending away from either side of said central portion, each of said side portions **positioned** in twisted relationship to said central portion such that each of said side portions extends...